

W. 1921 - NO. 184

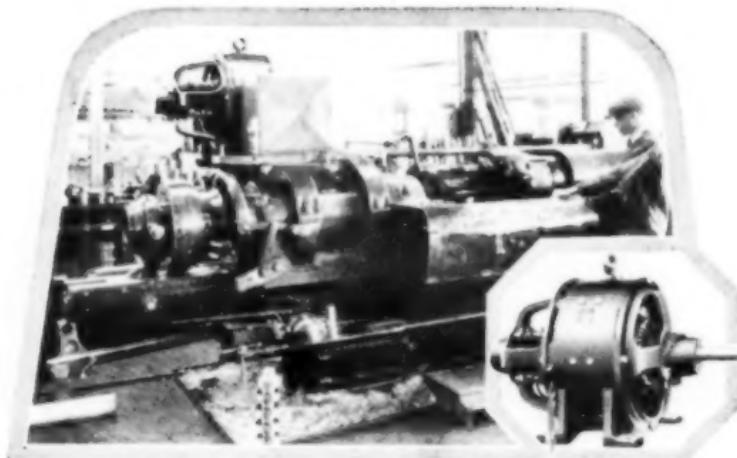
Monthly

A Reference for Buyers

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

Distributed Free to Machine Tool  
Users Everywhere in the United States and to  
Dealers in American Machinery Abroad

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago



## Production doubly assured

You have but one thing in mind when buying a machine like this—it's production—more parts at less cost.

You can be doubly sure of the cost cutting results which you expect if the driving power is a rugged, well-built motor like the Reliance Type T.

These motors represent the everyday shop experience of 35 electrical engineers who know what motors must do in metal working plants. As a result you can be sure that Type T motors will do more than meet ordinary needs. They will stand the extra strain when you are crowding your machines for more production.

Specify Type T motors and get the best results which good machine tools can give.

**Reliance Electric & Engineering Co.**

1050 Ivanhoe Road, Cleveland, Ohio

*Branches:*

Boston New York Philadelphia Pittsburgh Cincinnati Detroit Chicago

We specialize in motors, sizes 1/2 to 150 h. p., constant and adjustable speed  
D. C., squirrel cage and slip ring A. C.

**Type T Heavy Duty  
RELIANCE MOTORS.**  
*Direct Current*

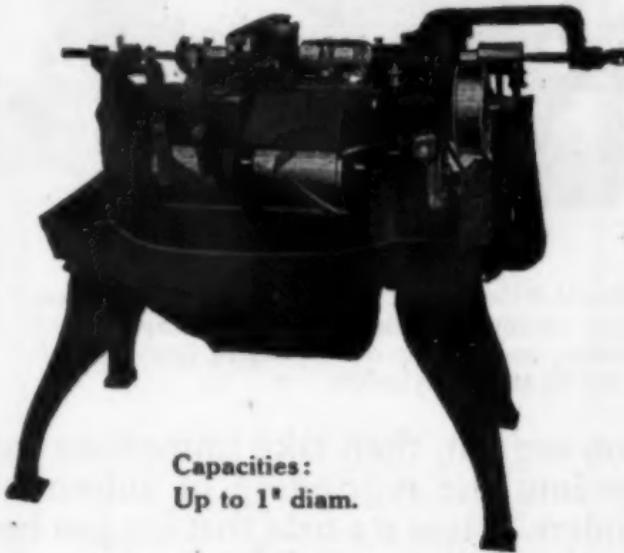




# Time-savers for Studs

There are many ways of threading studs, but the way to thread them at the lowest cost per piece is Automatically—on NAMCO Stud Threaders.

Blanks are automatically fed from the magazine and one operator takes care of three or more machines. NAMCO Self-Opening Dies insure accurate threads, and the time between cuts is reduced to minimum. Doesn't that sound like the right way?



Capacities:  
Up to 1" diam.

## THE NATIONAL ACME COMPANY CLEVELAND, OHIO

New England Plant, Windsor, Vt. Canadian Screw Plant, Montreal, P.Q.

### *Branch Offices:*

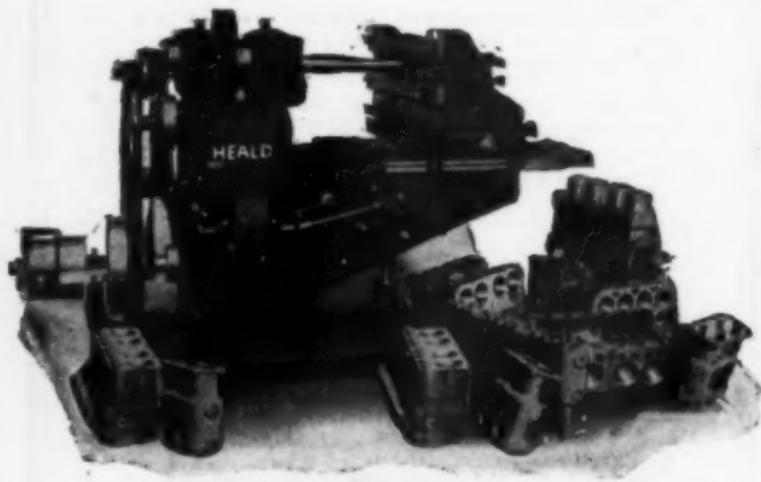
NEW YORK BOSTON CHICAGO DETROIT BUFFALO

WAREHOUSES—NEW YORK and CHICAGO

REPRESENTATIVES IN PRINCIPAL FOREIGN COUNTRIES

*Makers of Gridley Single and Multiple-Spindle Automatics  
at Windsor, Vt., and Acme Automatics, Threading Dies, Col-  
lapsing Taps and Screw Machine Products at Cleveland, Ohio*

# Are YOU Busy?

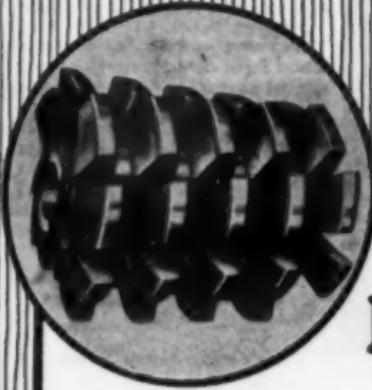


Heald Style No. 55 is simple, moderately priced, self contained and has a very large capacity and range, easily taking care of singles, doubles, fours and six en bloc cylinders.

If you are not, then take immediate steps to go into the regrinding of automobile cylinders. Here is a field that has just been opened and the possibilities are enormous.

We have compiled data regarding the possibilities, profits, and equipment required. This data will interest you. Wire, phone or write, immediately.

**The Heald Machine Co.**  
6 New Bond St., Worcester, Mass.



## Hobs

Prompt deliveries are being offered on Brown & Sharpe Hobs for Worm Wheels, Spur Gears or special purposes.

This offer is being taken advantage of by manufacturers with an eye to the future. Check up your Hob and Cutter equipment — be ready for all orders that require accuracy and speed, the winning combination that has made our cutters the favorite.

**BROWN & SHARPE MFG. CO.**  
PROVIDENCE, R. I.



# SAVE

spoiled work due  
to poor lighting;  
Save half the cur-  
rent; Save eye  
strain; Save Lamp Breakage.

Increase output by having a  
good light directly on the work;  
on the thread you are cutting; in  
the hole you are boring; right at  
the spot you are working. In-  
stantly adjustable; stays where  
it is put.

We will send one of these  
lamps to any plant or factory on  
approval.

*Send for our literature on  
machine shop specialties.*

*We make Money Savers.*

**The Will-Burt Company**  
Orrville, Ohio



Belt Driven

## Dupont Power Hammers

Belt or Motor Drive

These hammers embody  
a design and workman-  
ship that are unsurpassed.

*Specifications on Request*

**United Hammer Co.**  
45 Bromfield St., Boston, Mass.

Punches—Shears—Bending Rolls  
The Beloit  
Combined Power Punch And Shear



Built in six sizes. Nos. 51, 52, 53, 54, 55 and 56

Direct connected motor or belt drive

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

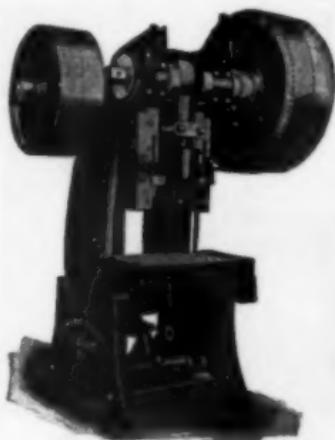
We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

*Write for catalogue and prices*

**Hendley & Whittemore Co.**  
100 S. State St., Beloit, Wis.

## L-J Heavy Duty Inclinable Power Press



TWENTY-FIVE years of specialized technical experience lies behind this efficient press. Embodies latest improvements for quick, perfect and large output. Made also in the flywheel and geared type.

### Our Dealers

Herberta Machinery & Supply Co., Francisco and Los Angeles, Cal.  
Northern Machinery Co., Minneapolis  
Brown-McDonald Mch'y. Co., St. Louis  
English Tool & Supply Co., Kansas City, Mo.  
Stoecker-Rumely-Wach Co., Chicago  
W. J. Baird Machinery Co., Detroit  
Cyril J. Bath & Co., Cleveland, Ohio  
Reliance Mch'y. Sales Co., Pittsburgh  
M. D. Larkin Supply Co., Dayton, Ohio  
Joseph Beal & Co., Boston, Mass.  
Dale Machinery Co., Inc., New York  
J. L. Lucas & Son Inc., Bridgeport, Conn.

Write to the nearest, or

Loshbough-Jordan Tool & Mch'e. Co.  
Elkhart, Indiana

## The Emco "W" Bench Power



## Punch Press

NOW MADE IN  
 $\frac{3}{4}$ ,  $1\frac{1}{4}$  or  $1\frac{3}{4}$ " stroke

We make also

Automatic  
Roller Feed  
for all styles

Also Emco "V" Bench

## HORN PRESS for ASSEMBLING

The Enterprise Machinery Co., 28 S. Clinton St.  
CHICAGO, ILL.

# Spring Foot Press

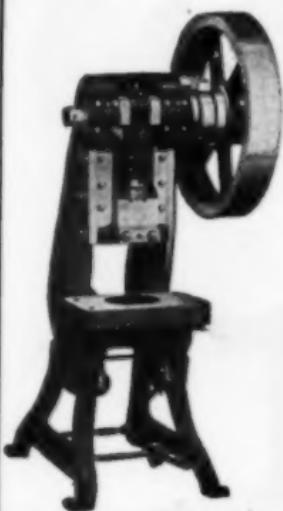


*Write For Circular*

**The Taylor & Fenn Company**  
Hartford, Conn., U. S. A.

# Here Is A Press

With Plenty of Steam  
Back of THE PUNCH



HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Made in straight side and  
inclinable types. Their great  
power backed by rigid design  
enable them to do the work  
you demand and stand up to it.

*Write For Catalog*

**Rockford Iron Works**  
Rockford, Ill.

## Complete Line of **Willard Power Presses**

(Inclinable Open Back)

For Efficient, Economical  
Sheet Metal Press Work



Built for hard service and embodying  
the latest power press improvements.  
All parts practically interchangeable.  
High grade steel shaft capable of with-  
standing the heaviest strains. Latch  
has positive safety stop making it im-  
possible for press to "repeat" until the  
treadle is pulled clear down.

**Powerful--Accurate--Durable**

*Full details on request*

**The Willard-Middletown Machine Co.**  
Cincinnati, Ohio

Successors to The Willard Press & Tool Co.

# "G. A. Lewthwaite" Quality Tools



## "The Punch With A Punch"

It has always made good. Try it out on your toughest jobs and you'll be satisfied. High grade steel, plus top notch tempering efficiency tells WHY.

### Sheet Iron Shear and Rod Cutter

High and unusual quality of "G. A. Lewthwaite" secret of its up-to-date design. Invaluable for sheet metal workers, boilermakers, and blacksmiths. beyond its rated capacity. Soon pays for itself.

Grade material, superior mechanism and cutting power of the "G. A. Shear and Rod Cutter are the standing productive means for most jobs handled by shipbuilders, Cuts best and pays

Also  
Pipe Benders  
Bar Benders  
Power Presses  
Foot Presses  
Etc., Etc.



BAR SHEARS, 1 1/4" capacity and smaller.

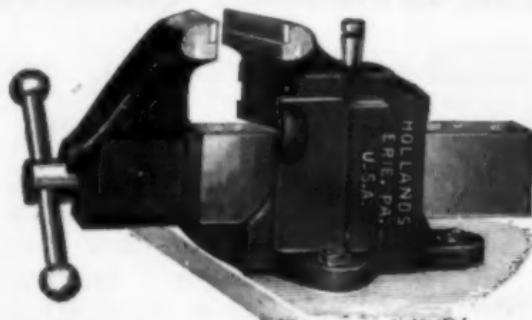
PLATE SHEARS, 3/8" capacity and smaller.

Write for our Catalog of Iron-Workers' Tools

**George A. Lewthwaite Co.**  
116 Walker St., - - - New York

# Hollands Vises

Have made good  
for 33 years



**HOLLANDS VISES** are made with solid or swivel jaw and stationary or swivel base, and each is a leader in its class. Machinists' Vises, Filers' Vises, Woodworkers' Vises—what do you need? Write for latest price list.

Hollands Tool Co., *(Established in 1887)* Erie, Pa.

## Whitney Ball Bearing Punch No. 40

This style of Whitney Ball Bearing Punch is equipped with Ratchet Head and Socket Handle.

Capacity,  $\frac{3}{4}$ " thru  $\frac{3}{4}$ " iron

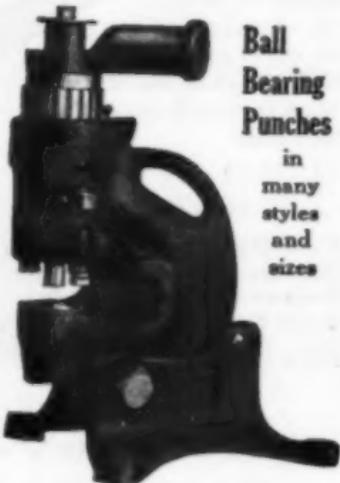
Depth of throat, 3"

Height of throat, 2"

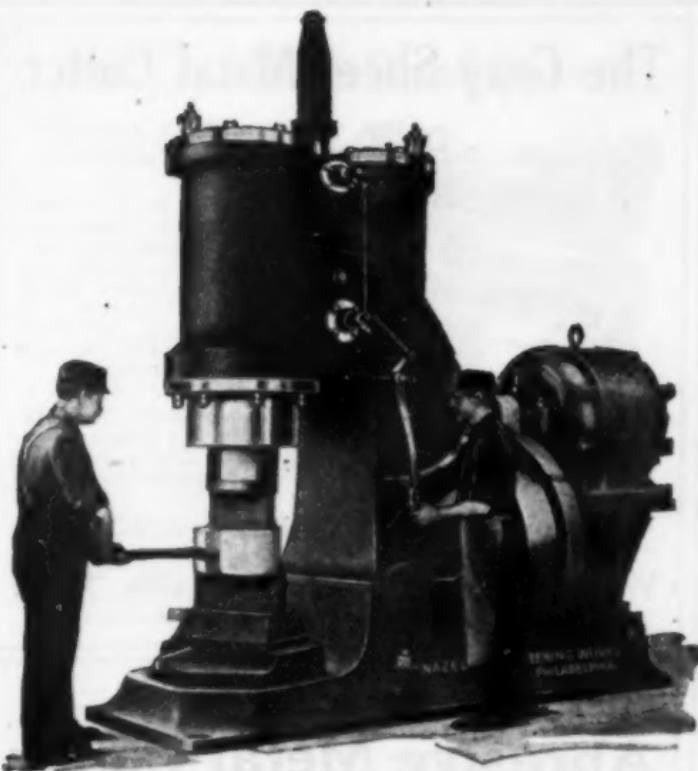
Weight complete, 67 lbs.

The elimination of friction enables us to design all Whitney Punches to do more work at less cost.

*Write for Catalog and Price List*



**Whitney Metal Tool Co.**  
109-111 Forbes Street, Rockford, Ill.



In a Hammer, after all is said and done,

## It's the Blow that Counts

Anybody can strike a piece of steel with a hammer, but that doesn't make him a Tubal-cain. Any power hammer will strike a blow, but that doesn't mean that it will do what the Nazel Air Hammer will.

It is the delicacy of control, rivalling in accuracy the arm of the skilful smith, which gives the blow that counts, and the Nazel its peculiar effectiveness. The result is more work accomplished for each unit of time and labor expended, and therefore a higher economy. The reason you should have it is that it will pay you. Let us prove that.

*A Nazel Hammer Book can't hurt you; it may help you.  
Send for it; it's free.*

**Nazel Engineering & Machine Works**  
**Nicetown, Philadelphia, Pa.**

# The Gray Sheet Metal Cutter



*"Tell us who uses it and we'll tell you how good it is"*

Its users include the best concerns from New England to California, such as American Radiator Co., Victor Talking Machine Co., United Shoe Machinery Co., General Electric Co., American Locomotive Co., Union Hardware Co., Ford Motor Co., etc., etc. Send for long list of prominent users and testimonials.

The four sizes cut  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ " and  $\frac{5}{16}$ " plate, any intricate pattern, easily, quickly and cheaply, leaving edges smooth and metal flat.

*Write for the full data*

**W. J. SAVAGE CO., Knoxville, Tenn.**  
Alfred Herbert Ltd., Exclusive Foreign Representatives.

## Peter Brothers' Ball Bearing Abrasive Metal Cutter

**Eliminates Nicking, Breaking and Grinding**

Makes a smooth, decisive cut through high speed steel, brass, copper, aluminum and all other metals. The bearings as well as the counter-shaft are ample to secure **long life and accuracy**. Get your toolmaker this cutter and he'll do **more work in less time**.

**8" Size \$22.50, with C. S.**

Splendid for tool room. Cuts high-speed steel up to  $1\frac{1}{2}$ " square.

**12" Size \$60, with C. S.**

Cuts up to  $2\frac{1}{2}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

**15 Days' Free Trial**

**Write us or ask your dealer**

**PETER BROTHERS MFG. CO.**  
115 Railroad St., Algonquin, Ill.



# MARVEL Metal Band Saw No. 8

Blade Tilts 45 Degrees  
To Right or Left

*Tilted Position For  
Cutting On an Angle*



A UNIVERSAL METAL CUTTING band saw of unusual design and completeness. It has exceptional ease of operation, wide range and great capacity. The special feature of the tilting blade allows sawing at any angle up to 45 degrees while work is held stationary in vise. Saw blade is mounted on two flanged wheels supported by a very rigid frame which is pivotally carried on a frame under table. Capacity of throat: depth 18 in.; height 20 in.; at 45 degrees the height is 14 in.

Wouldn't you like to know more of the details? Write to

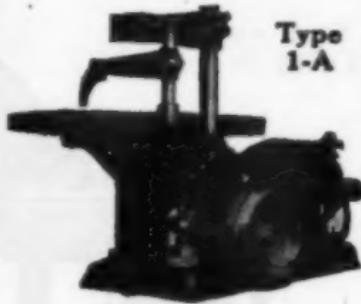
**Armstrong-Blum Mfg. Co.**  
341 N. Francisco Ave., Chicago, Ill.



## J & B Filing and Sawing Machine Doubles Output and Cuts Costs

In these days of close figuring, this simple and productive filing and sawing machine saves its cost in a short time. An apprentice turns out more and better work than a first class machinist can by hand filing.

On many jobs it insures a direct saving up to 60%. It can operate where file does not go thru or past work, or where file has to groove out a shoulder.



30 DAYS' FREE TRIAL

Return at our expense if not the time saver we claim

**JOHNSON & BIDDLE TOOL CO., ELKHART, INDIANA**

## “QUICKWORK”

Registered in U. S. A. and Foreign Countries

### Rotary Shears

Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

**Save 50 to 90%**

Eliminates Oxyacetylene cutting and plate planing

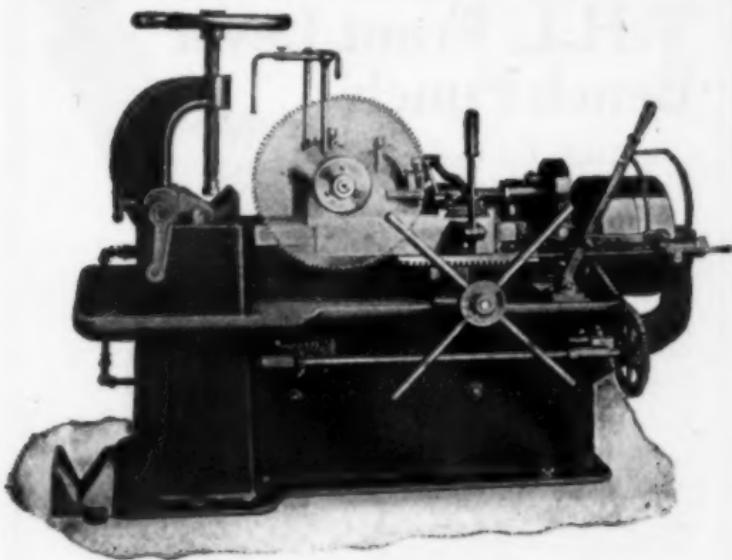
Write for catalogue No. 60

Patented June 3, 1913; Aug. 26, 1919.



**THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.**  
Cable Address "Quickwork," "W. U." and "General" Codes

# The Knowlton Metal Saw Cut-off Machine



**Model Two**

Send to the nearest dealer for a circular of this powerful Cold Saw and find out about its large capacity, cutting speed and reasonable price.

HILL CLARKE & CO.	Boston
BARBOUR, LOVE & WOODWARD	New York City
BANKS SUPPLY CO.	Huntington, W. Va.
HERBERTS MACHINERY & SUPPLY CO.	
	San Francisco and Los Angeles
WOLVERINE MACHINERY & SUPPLY CO.	Detroit
FRANK TOOMEY, INC.	Philadelphia
BROWN McDONALD MCHY. CO.	St. Louis
GENERAL MACHINERY CO.	Spokane
SUNDERLAND MACH. & SUPPLY CO.	Omaha
NORTHERN MACHINERY CO.	Minneapolis
FEDERAL MCHY. SALES CO.	Milwaukee and Chicago
THE NATIONAL SUPPLY CO.	Toledo
McMULLEN MACHINERY CO.	Grand Rapids
KEMP MACHINERY CO.	Baltimore
NEILL-LA VIELLE SUPPLY CO.	Louisville
DAY MACHINERY CO.	Buffalo
YOUNG & VANN SUPPLY CO.	Birmingham, Ala.
THE PATTERSON TOOL & SUPPLY CO.	Dayton

Manufactured by

**KNOWLTON MACHINE COMPANY**  
WESTBROOK, MAINE

**"High Grade Tools"**

# **T.H.L. Front Lever Bench Punch**

**Stands Up Under  
Longest, Toughest  
Wear and Tear**

**Price \$60**

Extra Punches, 35 cents each,  
\$3.75 per dozen. Extra Dies,  
40 cents.

Capacity 13/32" thru 1/4" steel,  
11/32" thru 5/16", and up to 1/2"  
thru thinner metal.

**Weight 70 lbs.**

Adjustable gauge. Punch cannot  
lose alignment with die. Made of  
best materials. All parts inter-  
changeable.



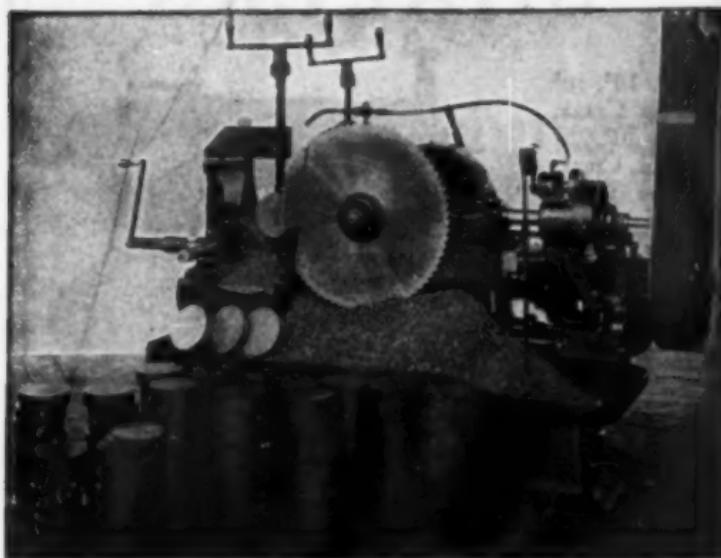
## **"T.H.L." Quality Punches and Dies**

They're accurate, durable and  
highly productive, because: (1)  
Made of the best tool steel;  
(2) They are built for power  
and ruggedness; (3) They are  
*individually* tempered with  
great care.

*One trial will convince you*

**T. H. Lewthwaite Machine Co.**  
417 East 31st St., (Est. 1890) New York City  
'Phone, Murray Hill 3117

# Cochrane-Bly No. 5 Cold Saw



144 Blanks  $5\frac{1}{4}$ " Diameter Cut on This Machine in 8 Hours.

Actual Cutting Time Was 3 Minutes and 10 Seconds Per Cut.

Will Also Cut in Multiple at one Time

76	Bars	$\frac{1}{2}$ "	Diameter
26	"	1 "	"
13	"	$1\frac{1}{4}$ "	"
8	"	2 "	"
4	"	$2\frac{1}{4}$ "	"

Five Sizes to Suit All Requirements up to  $8\frac{1}{4}$ " Round Bar.

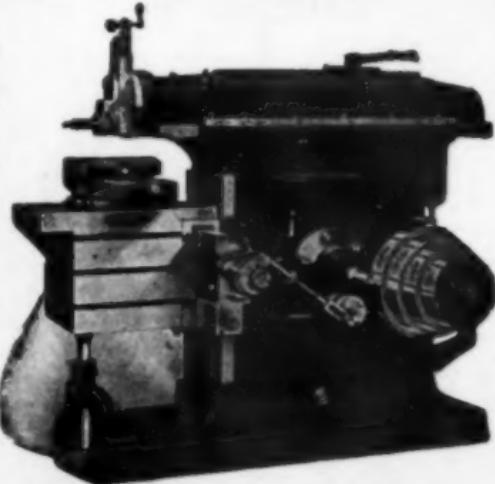
*Write for Catalog*

**Cochrane-Bly Company**  
Rochester, N. Y.

# SHAPERS

12<sup>8</sup>, 14<sup>8</sup>, 16<sup>8</sup>  
Plain Crank,  
16<sup>8</sup>, 20<sup>8</sup>, 25<sup>8</sup>  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

28<sup>8</sup> and 32<sup>8</sup>  
Back Geared Crank,  
Single Pulley Drive.



The Smith & Mills Co. Station B,  
Cincinnati, O., U.S.A.

## Shapers

The best medium  
priced Shaper on  
the market.

Built in 16<sup>8</sup>, 20<sup>8</sup>,  
and 24<sup>8</sup> sizes, all  
back geared crank  
machines.

V-type ram.  
Double face bull  
gear.

*Ask us about them*



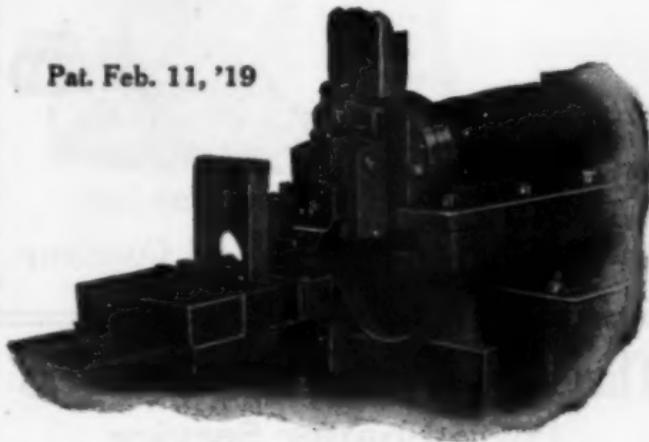
The Osborne & Sexton Mchy. Co.  
Columbus, Ohio

# BRUNO

## Slotting Attachment

for Shaper and Planer

Pat. Feb. 11, '19



A cutting tool holder which converts your shaper into a Horizontal Slotter and makes possible the most intricate shaping such as is required for dies, jigs, gauges, keyways, slotting, etc.

*Write for circular. Dept. H.*

**H. A. MOORE CO.**  
ROCHESTER, N.Y., U.S.A.

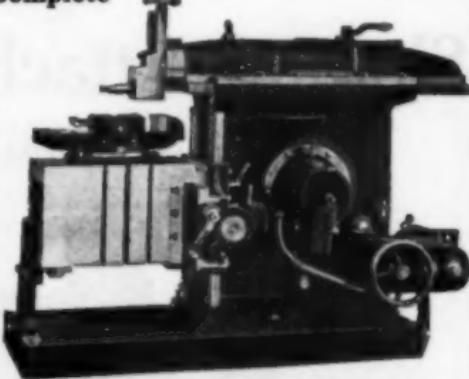
# COLUMBIA SHAPERS

Modern and Complete

It's what you  
*get*, not what  
you pay, that  
really counts.

Discriminate.

Buy a MODERN  
Shaper.

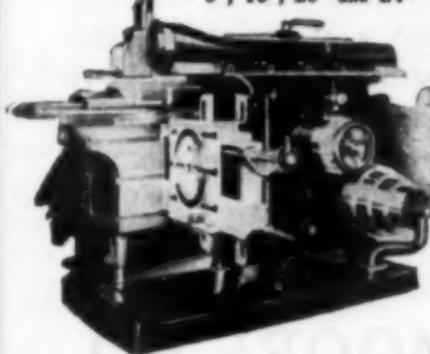


16', 20', 24', 28', 32'

The Columbia Machine Tool Company  
Hamilton, Ohio

## The "MILWAUKEE" Offers 100% Shaper Service

16", 9", 16", 20" and 24"



The positive stroke control is instantly adjustable. The Friction Locking Device, positive in action, stands up under the *heaviest* strains. Swivel tables can be swung to any angle. Rugged ram with "V" ribs operates without vibration. Powerful back gearing. Rigid column.

Want particulars?

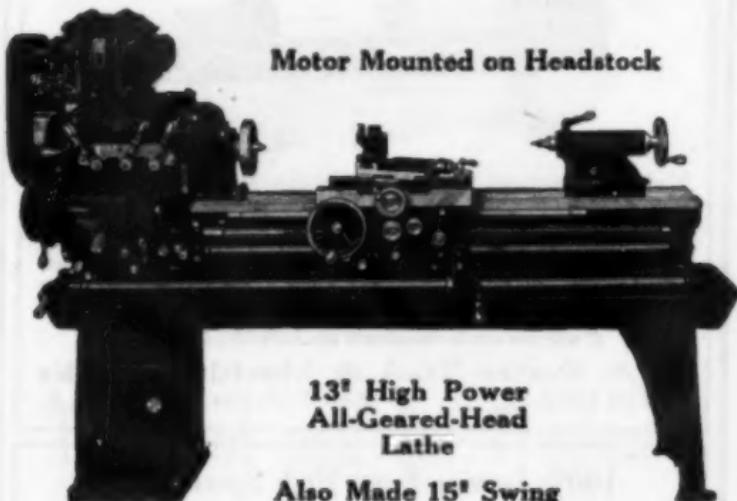
MILWAUKEE SHAPER CO.,

Milwaukee, Wis.

# Willard MATTMAN BRATTEN Lathe

(Double Back Geared—Quick Change)

## Ideal For Tool Room Operations



The NEW WILLARD Tool Room Lathe is completely redesigned throughout and is offered as the latest modern all-geared-head lathe, capable of the most economical, efficient and varied tool room production.

The headstock is a full box section, rigid and self-contained. All speed changes are selective inside the headstock. Chrome nickel steel gears, and hardened sliding gears. The gears in headstock run in oil.

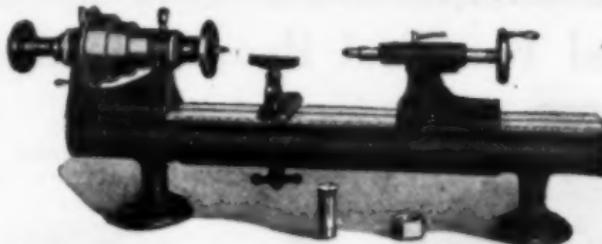
It is impossible to throw in two speeds at the same time. Six direct speeds are available. Six further speeds are obtainable through the back gears, or a total of **Twelve Speeds**.

All shafts are equipped with SKF bearings.

*Write for full details of this unusual machine tool*

**The Willard Machine Tool Co., Inc.**  
F Street, Box 784 - CINCINNATI, O., U. S. A.

## POTTER No. 5 BENCH LATHE RIGID, ACCURATE, ADAPTABLE

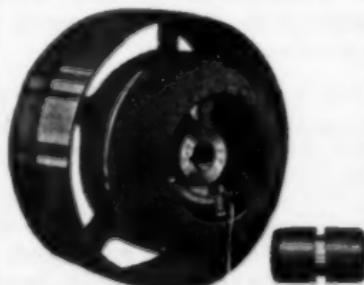


Made first for our own special use, subjected to the most varied, rigorous tests, we offer POTTER No. 5 with absolute confidence as to its superior merits. Among its improvements are: Compound Slide Rest, Double Cross Slide, Lever Tailstock, Tailstock Turret, Internal Grinding Attachment, Thread-Cutting Fixture, Milling Attachment, 3-Speed Grinding Counter, Large Turret Fixture, Improved Lever Chuck Closer, Universal Grinding Attachment, 2-Speed Plain Counter, Mounted Headstock.

*It will pay you to investigate this UNUSUAL LATHE*

**S. A. Potter Tool & Machine Works**  
71 East 130th St., New York City, N. Y., U. S. A.

## 100% Service From High Speed Tools With Edgemont Friction Clutch



Enclosed Type, Self-Oiling

These Friction Clutches are backed by many, many years of highly successful service of the foremost Machine Manufacturing Plants in the U. S.

In the heaviest and severest tests on thousands of heavy duty machines they have always won out.

Built for the most rugged work. Thrown in and out smoothly and easily.

Their pulling power is equal to that of the belt at whatever speed required.

*Send for Catalog of the Edgemont Line*

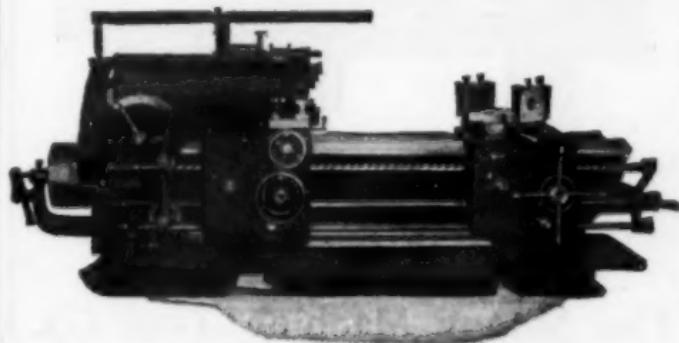
**The Edgemont Machine Co.**  
Dayton, Ohio

Special Clutches and Transmission Machinery for all purposes.

# STEINLE TURRET MACHINE CO.

## MADISON, WISCONSIN

Originators of the Heavy Duty Full Swing Side Carriage Turret Lathe



## The Tool and Its Product

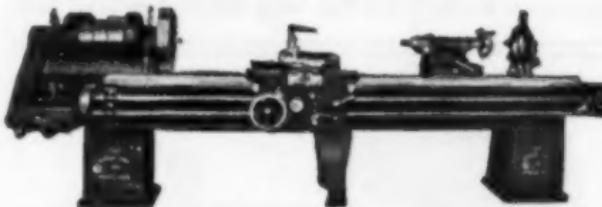
The tool invariably bears a direct relationship to its product. A good tool, well designed, and of proper construction means accurate work at very low production cost. There are many money-saving features about the STEINLE TURRET LATHE that instantly appeal to the careful buyer. The general massive construction, the ease of operation of all parts, the single pulley drive and 30 reversible spindle speeds, the power rapid traverse of both carriages, the power cross feed of side carriage and the general adaptability to special tooling, enabling rapid, accurate, and economical production—these are strong points well worth considering.

STEINLE LATHES are widely used by leading concerns. They can produce for you as they are now producing for others.

*Why not send us your blue prints and let our Engineering Department determine what can be done on your own work?*

# Sidney Medium and Heavy Duty Lathes

Include Lathes for every class of work  
In shops of any size or type



**MEDIUM DUTY LATHES** in 14", 16", 18" and 20" swing.

**HEAVY DUTY LATHES** in 15", 17", 19", 25", 27", 30" and 36" swing. They give satisfaction everywhere.

*Write for Bulletin No. 45*

**The Sidney Machine Tool Co.**  
Sidney, Ohio

## DAVIS MACHINE TOOL CO.

ROCHESTER, - - - NEW YORK

### *MANUFACTURERS OF—*

**14—16" Close Coupled Tool Room Lathes.**

**12—14—16" Engine Lathes.**

**24"—Chucking Lathes.**

**14—16—20—24" Shapers.**

**3—4½—6" Cutting-off Machines.**

**No. 1—2 Keyseaters.**

**20" Drill.**

*Complete information upon request*

It Anticipates Every Requirement  
**Cataract Precision Lathe**  
With Quick Change Swing



Swing 9° to 15°  
Length of bed 52"  
New Motor Drive  
½ H. P. Motor

Behind the CATARACT lies the matured technical and mechanical skill of thirty eight years spent in designing and building the well known Cataract Line of Machine Tools.

Absolute accuracy, unusual range, adaptability and ease of operation are its chief upstanding merits.

The bases of heads and tailstocks are perfectly aligned. Sixty-hole index insures the cutting of double, triple or quadruple threads. Steel spindle is hardened, ground and lapped.

Its capacity is considerably extended by the 3" raising blocks, increasing swing to 15".

*Write for Catalog, which is profusely illustrated, with specifications and thread cutting and metric gear tables.*

**HARDINGE BROTHERS, Inc., Chicago, Ill.**

# Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes**. Built in all styles and with any attachments desired.

Sizes 10 to 30-inch Swing

*Sold by a leading Machinery Dealer  
in every machinery center.*



**THE MONARCH MACHINE TOOL CO., 106 Oak St., SIDNEY, OHIO**



# Barnes 18 inch Lathe

Bronze Boxes

Steel Racks

Hole in Spindle  
1 $\frac{5}{8}$ " Diameter

For Garage, Repair Shop and  
Manufacturing Purpose

6 ft. Bed \$625.00

8 ft. Bed \$650.00

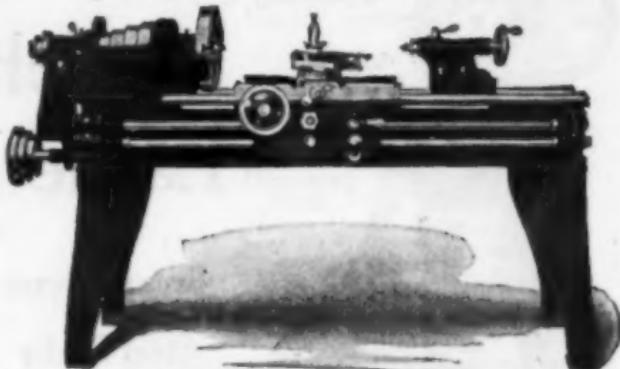
10 ft. Bed \$675.00

Made By

**W. F. and John Barnes Co.**  
123 Ruby St., Rockford, Ill.

## "STANDARD" ENGINE LATHES

14<sup>°</sup>—16<sup>°</sup>—18<sup>°</sup>—20<sup>°</sup> swing. Beds 6 to 16 ft.  
"QUALITY WITHOUT FRILLS"



A moderate price lathe combining simplicity and accuracy with the highest grade of materials and workmanship. Suitable for repair shops, garages, manufacturing plants, etc. *Send for descriptive circular and prices.*

**THE STANDARD LATHE WORKS**  
2951-61 Colerain Ave., CINCINNATI, OHIO, U. S. A.

## "LEHMANN LATHES"

Three Step Cone—Double Back Geared and Geared Head—Single Pulley Drive or Arranged for Motor Drive

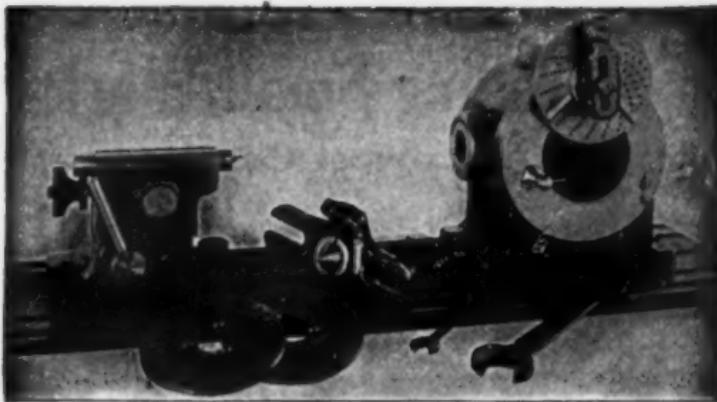


Five Sizes—14<sup>°</sup> to 24<sup>°</sup>

These are strictly high-grade engine lathes of superior design and thoroughly good workmanship and material. Built for accuracy and production.

*Write for complete specifications and details. Do it today—NOW.*

**LEHMANN MACHINE CO., 3562 Chestnut Ave., ST. LOUIS, U.S.A.**



Plain Index Centers Swing 10" Diam.

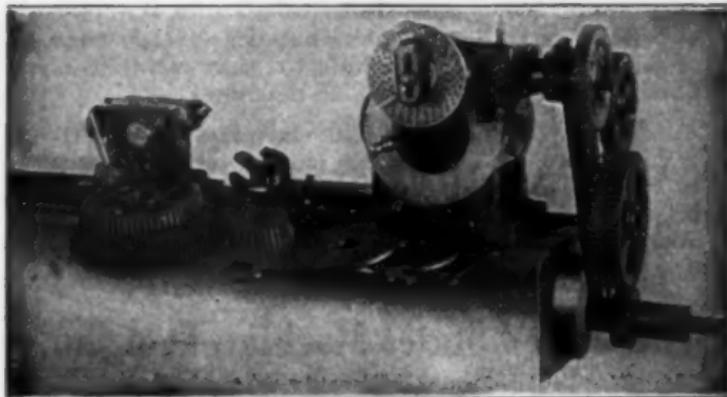
## SIMMONS OF ALBANY

These Dividing Heads or Index Centers may be used on any milling machine; are well designed; materials are the finest obtainable.

The Universal Index with Spiral Cutting Attachment is a quite recent development and will be found remarkably useful in any tool-room. Let us tell you more about these accessories.

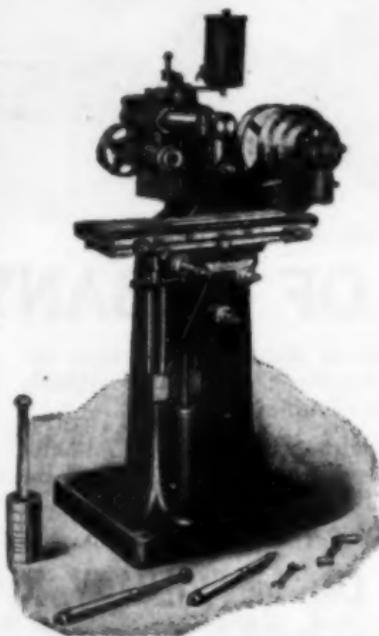
**SIMMONS MACHINE CO., Inc., ALBANY, N. Y.**

BRANCHES: 801 Singer Bldg., New York, 86-88 Exchange St., Buffalo, N. Y.  
Albany and Buffalo Warehouses



Universal Index Centers with Spiral Cutting Attachments

# For Milling Small Work At Lowest Cost



No. 1  
U. S.  
Improved  
Hand  
and Weight  
Feed  
Milling  
Machine

With its wide range and quick adaptability, and with *greater power than any similar tool of its size*, the No. 1 U. S. Improved Milling Machine handles a great variety of small work in *less time* and at a *lower cost* than is possible on large, costly milling machines.

Furnished, if desired, with Universal Milling Attachment, adapting it for die sinking, profiling, etc.; or with Plain Milling Attachment; also with a full line of accessories. Can be arranged for motor drive and oil pump attachment.

*Write for specifications and full particulars*

**The United States Machine Tool Co.**  
Cincinnati, Ohio, U. S. A.

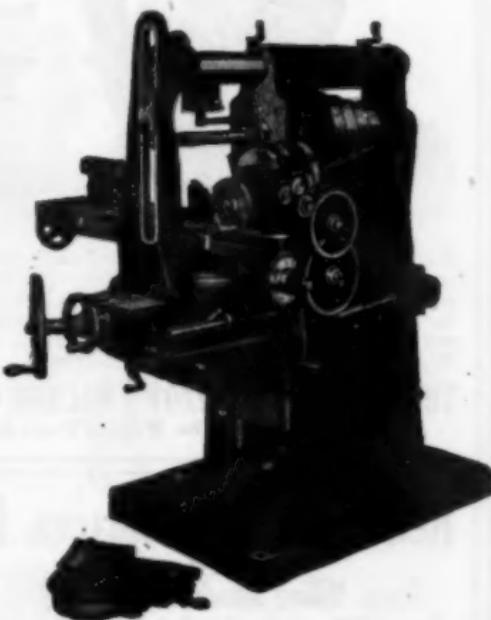
**American**      Universal  
Back Geared      **Miller**

**Rugged—Rigid—Reliable**

Furnished, if  
desired, with

**Swivel  
Vertical  
Milling  
Attachment**

For all kinds of  
vertical milling

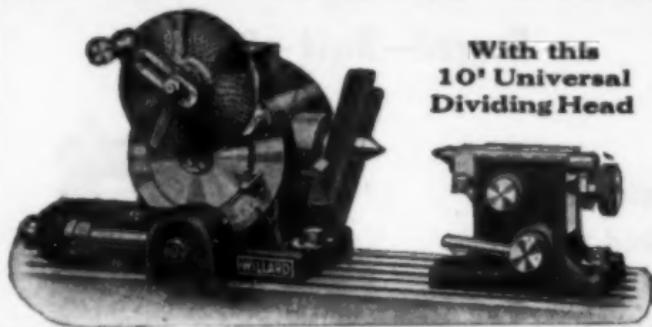


Its ruggedness enables it to take care of the heaviest strains. Wide bearings, accurate alignments, simple adjustments and ample lubrication help to explain its marked superiority. Equipped with power cross feed and power longitudinal feed. Heat treated steel gears, ground running shafts and bronze bushed bearings. Operating levers are most convenient to operator.

*Our Illustrated Folder offers full description of  
this high grade miller. May we send it?*

**The American Milling Machine Co.**  
Cincinnati, Ohio, U. S. A.

## Reduce Milling Costs



With this  
10' Universal  
Dividing Head

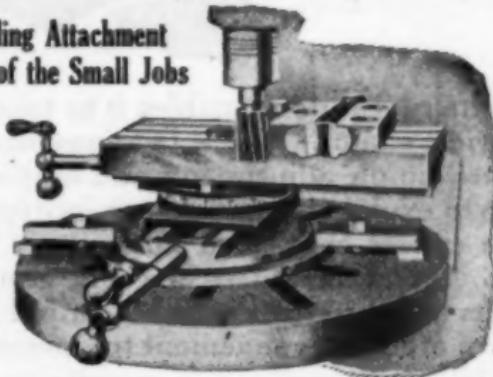
Built in very liberal proportions. Easily handles the heaviest cuts encountered on a plain miller. Graduated swivel head can be set anywhere from 10 degrees below the horizontal to 10 degrees beyond the vertical. Worm wheel and index pin are relieved of all strain by means of an efficient locking device. *Write for details.*

**THE WILLARD-MIDDLETOWN MACHINE CO., Cincinnati, O.**  
Successors to The Willard Press & Tool Co.

## Relieves and Replaces Big Millers

Davis Milling Attachment  
Does 90% of the Small Jobs

Converts  
any Drill  
Press from  
14 to 42-in.  
swing in  
2 Minutes



Relieves your large millers, comes in handy spotting castings, milling ends of bosses, etc., and does 90% of the lighter jobs as well as a \$1,000 machine; cuts keyseats perfectly. We also have low factory prices on our cylinder reamer for reborning the Ford car, and on our reliable air compressor. *Write for the details.*

**Hinckley Machine Works,** HINCKLEY,  
ILL.

U. S. Patent Adjustable  
**Multiple Spindle Drill Heads**  
Unsurpassed on Big Drilling Lay-Outs



Spindle units  
quickly attached,  
or removed, to suit  
the work in hand.

Fixed Spindle  
Heads of any  
practical type made  
to order.

The conspicuous feature about the U. S. Multiple Spindle Drill Head is its PATENTED Double Adjustment of Spindles. Not only symmetrical lay-outs, but also holes in practically every conceivable line or formation—regular or irregular—can be easily and rapidly handled.

They are so rigid and powerful that the same speeds and feeds can be used with them as is employed for drilling a single hole. This means output is increased in direct ratio to number of units attached to head.

Nos. 1, 2, 3, and 3-A have from two to six spindles. Special Adjustable Heads built to order. No. 4 has four spindles, with single adjustment, for drilling evenly spaced holes in groups of four for pipe-fittings, flanges, etc.

*Send for complete specifications and prices*

**The United States Drill Head Co.**  
Cincinnati, Ohio, U. S. A.

## Burke Bench Millers

FOR  
Accuracy  
Convenience  
Economy

On small milling operations, where accuracy as well as production must be had, are the places to use Burke Bench Milling Machines.

*Built in various sizes,  
both hand and power  
feed, and at prices  
ranging from \$100 to  
\$220.*



The Burke Machine Tool Co., 297 E. 16th St.  
Conneaut, Ohio

It Eliminates "That One Thick Tooth"  
the Risk of



Dog cannot get loose, and there is no binding, cramping or lost motion. No adjustment of dog needed for correct milling of odd pieces. In gear cutting the risk of "one thick tooth" is eliminated.

The RED-E Milling Dog and Driver insures correct spacing because the ball sliding in grooved jaw compensates for the different angle in the driver at various positions of work.

*Send for complete Catalog No. H of RED-E Tools*

The Ready Tool Co.  
Bridgeport, Conn.



Drills the  
hole exactly  
where you  
want it →

—and the tilting  
table with gradu-  
ations in de-  
grees gives you  
the correct angle.



The Drill Guide is only one of the many conve-  
niences embodied in the up-to-date

## Knight Milling and Drilling Machines

They are such wonderful economizers of time  
and labor in both tool room and shop, that they  
immediately jump into the "popular" class.  
Ingenious mechanics are seldom "stumped"  
with a hard machining job when there's a Knight  
to help them out. Your choice of four sizes.

**W. B. Knight Machinery Co.**  
3920 W. Pine St.,

St. Louis, Mo.

*Unequalled  
for  
dies,  
tools,  
jigs  
and  
metal  
patterns  
of  
all  
kinds*

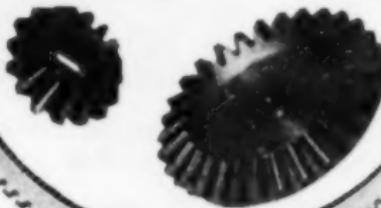


Everything in  
**GEARS**

Worm Wheels, Sprockets, etc.

Get our prices

**STRANAHAN GEAR CO.**  
17th & Wood Sts., Philadelphia, Pa.



**Thorofine  
GEARS**

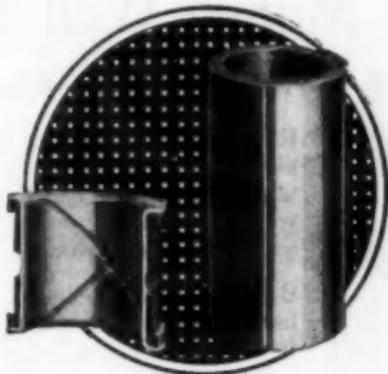
NOTHING TOO SMALL- NOTHING TOO INTRICATE

**THOROFINE GEARS** ARE GEARS OF EXCEPTIONAL ACCURACY.

**LARGE GEARS**

Made with the same care that has given Thorofine small gears their unusual reputation. Our Quotations will interest you. Write today.

**MERKLE-KORFF GEAR CO.**  
Formerly Modern Tool & Stamping Co.  
313 So. Clinton St., Chicago, Ill.



## Get Them as You Need Them— We Carry the Stock for You

All the straight bushings you need can be supplied from our in-stock line of 143 different sizes just as you need them and in small lots at big production prices.

Get this list. Write for Stock Card "W."

Complete stocks at all Branches

### The Bunting Brass & Bronze Co. 755 Spencer St., Toledo, O.

Bronze Bushings and Bearings—Babbitt Lined Bearings  
Patented

Cored and Solid Bronze Bars



NEW YORK CITY  
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Wabash 9153

SAN FRANCISCO  
189 Second Street  
Douglas 6245

# Hush Money Well Spent



## The Grant Rotary Rivet Spinner

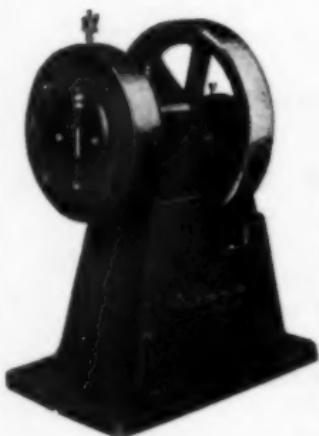
Rolls or swedges the rivet shank without noise so that when you buy a "Grant Rotary," which works smoothly and quietly without the usual nerve-racking noise, it most certainly is "hush money well spent."

But the hushing of noise is not its only big feature. It is *rapid*—one rivet a second. Its work is *uniform*, with any desired tightness or looseness. *Every head is polished*—no hammer or tool marks.

*Write for Catalog, or send us a sample of your work, or both*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

# 500 to 1,000% Increase



Is the profitable production record of the rapid and  
**Powerful Etna  
Rotary Swager**

as compared with that of the ordinary power hammer or knuckle swager.

Work can be passed thru the Etna at the rate of 10 to 20 ft. per minute, depending upon size and material.

Made in regular sizes to swage  $\frac{1}{4}$  to  $4\frac{1}{2}$ " diameter. Our large, illustrated Catalog shows some interesting production figures. Write for a copy.

**The Etna Manufacturing Co.,** TOLEDO,  
OHIO

# Riveting Revolutionized

"The Hammer with the human stroke"

Heads Rivets Cold



Heads 'em tight or loose, flush, countersunk, or finishes heads any shape desired at the rate of:—

A rivet a second, sizes up to 3-16 in.  
A rivet in two seconds, sizes 1-4 to 3-8 in.  
A rivet in three seconds, sizes 7-16 to 5-6 in.

## Built in Eight Sizes

To handle rivets from the smallest, up to 1½" in diameter.  
Send us sample assembly parts with rivets or sketch of your  
work, and let US shoulder your riveting problems.

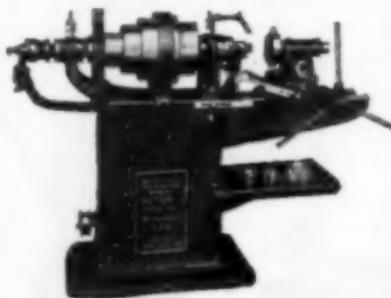
*Send for the High Speed Hammer Book*

Department 13

**The High Speed Hammer Co., Inc.**  
Rochester, New York

# Victor Nut Facing Machine

## For Rapid Facing True to Thread



**Speed**—The average operator faces 10 to 12  $\frac{1}{4}$  to  $\frac{3}{4}$  nuts a minute; larger ones in proportion.

**True to Thread**—Facing true to thread is insured by facing nuts on a hardened threaded mandrel.

**Substantial**—Seldom, if ever, needs repairs. No parts exposed to wear except high-speed steel cutters, which have only

to be ground for proper clearance, and are cheaply replaced when worn down. Made in two sizes. Arranged for motor drive if desired. Write for complete description.

**VICTOR TOOL COMPANY, - WAYNESBORO, PA.**

# Madison Adjustable Boring Tool

## For Both Rough and Finished Boring



This new tool is quickly adjustable to size, and operates with a heavy feed.

Just the thing for cylinder boring in automobile shops.

This handy Boring Tool is ruggedly built, backed by solid metal. One turn of graduated screw increases cutter diameter .025".

It can be made with a piloted bar for work requiring it. The bar can be used in any kind of boring machine where cored holes are to be machined.

*A new tool you should know. Shall we describe and quote?*

**MADISON MANUFACTURING CO., - Muskegon, Mich.**

# Replace Your Solid Threading Tools With The MURCHEY



*Now is a good time* to figure on shop economies. If you are still using solid taps and dies, you can cut down your threading costs immensely.

*Murchey Collapsing Taps and Self-Opening Dies* do all the work of solid tools, but more accurately and much more rapidly and economically. When chasers are worn out, replace them with another set—balance of tool lasts for years. You can ream, face and thread without stopping to change tools.

*Send blue prints of your work with trial order*

**Murchey Machine & Tool Co.**  
850 Porter Street, Detroit, Mich.

NEW YORK OFFICE

50 Warren Street

CLEVELAND OFFICE

1625 Williamson Bldg.

PITTSBURGH Representatives.

Laughlin & Barney, 819 Wabash Bldg.

CHICAGO Representatives.

R. E. Ellis Engineering Co., 621 Washington Blvd.

LOS ANGELES Representatives.

Harron, Rickard & McCone, 225 So. San Pedro St.

Coats Machine Tool Company, 14 Palmer St., Westminster, London, S. W., England

Fenwick Freres & Company.

8 Rue de Roeroy, Paris

# Hollow Bored Forgings and Steel Shafts



**Piston Rods  
Clutch Shafts  
Lathe Spindles**

**Rams  
Steel Pipes  
Etc., Etc.**

They are right in price and quality, with prompt delivery. We give "Service you can depend on."

*Let us have blueprints for quotations*

**American Hollow Boring Co.  
Erie, Penna.**

## The "Champion" Boring Tool

Patented



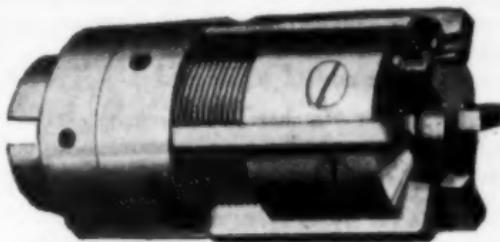
Tool consists of holder, one bar with inserted cutter with straight and 45 degree adjustment, one cutter and wrench.

Invaluable for improving and speeding up production.

Write for Catalog No. 18, illustrating the "Champion" Line of Tool Stands and other shop furniture, Tool Holders, Expanding Mandrels, Power Hack Saws, Wet Tool Grinders, Emery Wheel Dressers and Cutters, Vises, etc.

**Western Tool & Mfg. Co.,** Springfield,  
Ohio

# McCrosky



## McCrosky--Super Adjustable Reamers

Have six exclusive features that make them the superior adjustable reamers in design and service. Read the details on page 7 of the new No. 8 McCrosky Catalog.

*We have copy for you. Send for it today*

**McCrosky Tool Corporation**

Meadville, Pa., U. S. A.

*Branches and Agencies in all principal cities*

Export Agents: Benjamin Whittaker, 21 State St., New York, N. Y.

**COST CUTTING TOOLS**

## Alert Boring and Facing Tool



High Speed Steel Blades

Made in Three Sizes

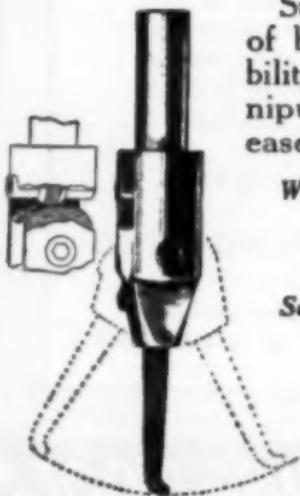
*Holes 6 Inches Deep* have been bored accurately in one cut. There's a reason. The Alert is used successfully on turret lathes, automatic screw machines and drill presses, for facing, counter-boring and radiusing where a fine finish is desired. Bores large holes where the cost of high-speed drills is prohibitive.

You Will Like our Ratchet Tap Wrenches, Roller Grip Arbors and Roller Grip Mandrels—all patented; also our High-Speed Solid Tap Wrenches and Hand Knurling Tool Holders.

Write for descriptive circular "H"

**Alert Tool Co.,** 237 N. 6th St.  
Philadelphia, Pa.

## E-Z-SET Boring Tool



Superior to other types of boring tools in accessibility of parts, ease of manipulation, simplicity and ease of adjustment.

Write for circular and price list

4 SIZES

5/16, 3/8, 5/8, 7/8" Tool Bits

Sent on 10 days' approval

THE  
**B. & W. Tool & Die Co.**  
102 St. Clair Ave., N. W.  
CLEVELAND, O.

*Pay Only for the High-Speed Steel that CUTS*

## **MOBACK CUTTERS**

**With Inserted and Adjustable Blades**



**The first cost** is less than that of solid cutters, for only the blades are high-speed steel. The frame is high-grade carbon machine steel, and all parts are ground to gauges.

**The renewal cost** is *only a fraction* of that of solid tools, because (1) the frame is used indefinitely, (2) the blades are adjustable for *twice the wear* of solid cutters, and (3) you get a new cutter *by simply changing the blades*.

**THE MOBACK FACE MILL**, shown in the illustration, is highly efficient, thoroughly dependable, and so economical that it makes the use of solid cutters a reckless extravagance.

**THE MOBACK END MILL** is made on the same principle, for the same excellent results. **THE MOBACK SIDE MILL** also has the inserted blades, and can be used in pairs, or separately, or in combination with gang cutters. All Moback Cutters *multiply the buying power of your dollar four to six fold* in the purchase of RESULTS.

*May we post you fully, for ECONOMY'S sake?*

**Moback Tool & Machine Mfg. Co.**

**330 Atlantic Ave.,**

**Boston, Mass.**

# Coventry Chucks



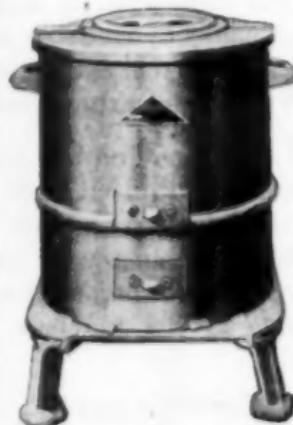
The strongest on the American market as to gripping power, protection from breakage and freedom from harmful wear. All working parts enclosed to keep out dirt and keep the lubricant in. Made in sizes of 9 to 25-inch diameter.

Write  
for Bulletin  
No. 201

**ALFRED HERBERT Ltd.**  
54 Dey Street, New York

14

## Reduce Tool Hardening Costs with The "Triad" Hardening Furnace



Saves 60% in Costs

Has three compartments for:

- 1 Hardening in Lead Bath.
- 2 Hardening in Semi-Muffle Furnace.
- 3 Forging in Combustion Section.

These three sections make it possible to carry on above three different operations at the same time *by one single heating unit*. It is also so perfectly constructed and improved that above three sections can be heated at a *lower* fuel cost than is required to heat the ordinary one-section furnace.

Write for Catalog No. 5

**The W. R. Bennett Co.,** P. O. Drawer X  
Elmwood, Conn.

# Chucking

With a Pull of a Lever—that's all

It centers automatically and requires only the pull of a lever to hold the piece either lightly or with a most powerful grip, as the character of the work may require.

## The Barker Wrenchless Chuck

is a self-contained device of extreme simplicity—no special equipment of any kind required. It turns most of the lost time between cuts into production time. On duplicate work it often *increases the output of a lathe from 30 to 150 per cent.* Sizes 6" to 16", with two or three jaws.

Thomas Elevator Co.

Chuck Division  
31 S. Hoyne Ave., CHICAGO



Write for Catalog, which fully  
explains its great economies



Straight Shank Turning Tool



Boring Tool



Straight Shank Cut-off Tool



**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

## Armstrong Tool Holders

Make One Pound  
of High Speed Steel  
go as far as Ten  
Pounds in Forged  
Tools.

Grand Prize Winners at  
Panama-Pacific Exposition.

*Complete Catalog Free.*



## Gerstner Quality Line of Tool Cases

Made in many styles and 30 sizes,  
with "quality" the prime object.  
Our Guarantee—"Money re-  
funded if you are not entirely  
satisfied."

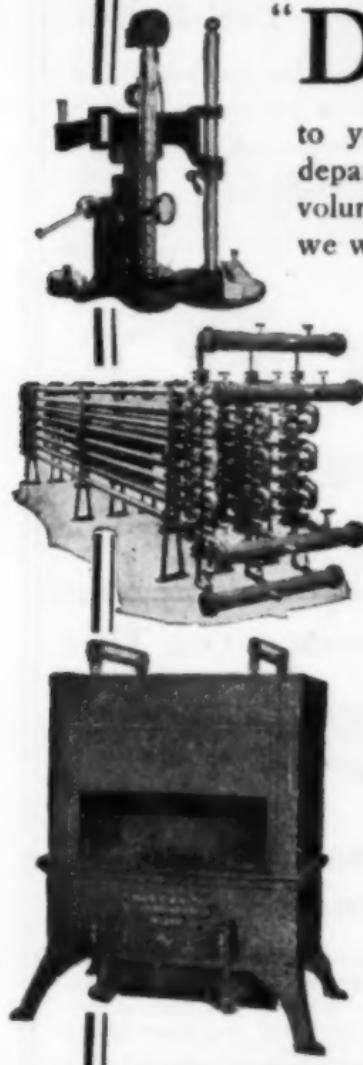
### Order and Protection

A place for everything and every-  
thing in its place, with protection  
against rust, dirt, pilferers and  
"borrowers."

*Write for Catalog*



**H. Gerstner & Sons,** 204 Columbia St.,  
DAYTON, OHIO



**"DOCTORS of heat-treating"—that's what we want to be to you. Whenever your department is ailing either in volume or quality of product we want to be called in.**

We will justify the invitation by giving you the level best of our advice, whether you use SCH equipment or not—and regardless of whether it means a sale. Put a problem up to us as a test of our ability.

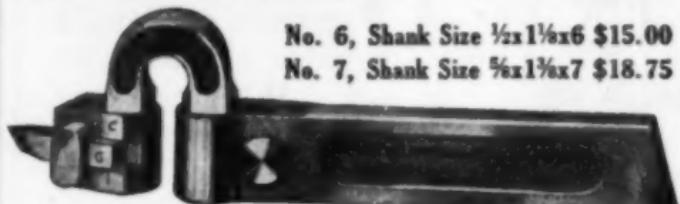
**THE  
STRONG,  
CARLISLE &  
HAMMOND CO.**

**CLEVELAND, OHIO**

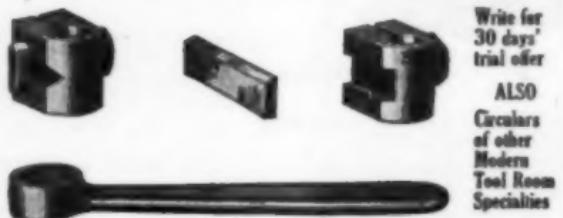
**Branches:**  
Boston New York Chicago  
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**SCH** **INDUSTRIAL**  
**FURNACES**

## Cleveland National Spring Head Tool Holder



For  
Bracing,  
Cut-off,  
Forms,  
Gages,  
Keyways,  
Radius,  
Taps,  
Worm or  
Square  
Threading,  
Etc.



Write for  
30 days'  
trial offer

ALSO  
Circulars  
of other  
Modern  
Tool Room  
Specialties

**The Cleveland National Machine Co.**

Dept. T. L., Cleveland, Ohio

**One Trial Will Convince You That**



## **The EASY-Lock Holder and Counterbore Cutter**

is the most efficient tool holder now offered. No wrench, hammer or wedge required. *One twist locks cutter into holder.* Cutters are adjustable and can be used up to a third of their length. Made also to fit screw machines and turret lathes.

*Folder on request*

**Manufacturers Machine Products Co.**  
1320 Mt. Elliott Ave., Detroit, Mich.

# Make *this* case your own!



## Carbonizes all kinds of steel

After you have given Ferro Case a fair trial in your shop, you will turn your back on cyanide forever. Ferro Case carbonizes at a lower temperature, thereby avoiding coarse crystallization, warping and wear of furnace linings and crucibles. With greater economy you obtain a better, cleaner, glass-hard case. Moreover

## It's a Non-Poisonous Compound

scientifically prepared, which does not lose its effectiveness with age or chemical action, and can therefore be stocked freely without any danger of deterioration.

Ferro Case M is for use in the cyanide melting furnace, and is handled the same way.

Ferro Case S is for sprinkling on hot steel. In either case you get better results in absolute safety.

*You will profit by making it your own case. Mail us that trial order today.*

**C. G. Buchanan Chemical Co.**

Sta. H.,

Cincinnati, Ohio



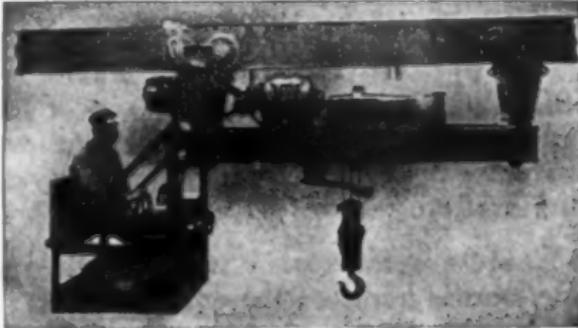
# NORTHERN CRANES

## NORTHERN "D & PL" Electric Hoists



*Our Catalogs on request*

**NORTHERN ENGINEERING WORKS**  
208 Chene St., Detroit, Mich.



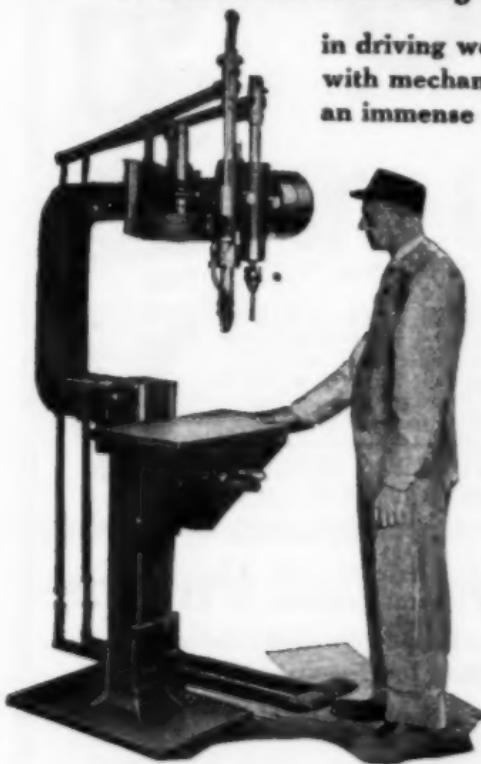
## Euclid Hoists

can be made a big factor in reducing your costs by speeding up material moving and cutting the pay roll.

*Write for catalogue today*

**The Euclid Crane & Hoist Co.**  
**EUCLID, OHIO**

# Profit By The Experience Of Hundreds of Leading Manufacturers



in driving wood or machine screws with mechanical perfection and at an immense saving in cost

**Stewart-Warner Speedometer Co.:** "Our seven Reynolds Machines paid their cost in about four months."

**Hoover Suction Sweeper Co.:** "Workmanship far superior to hand work."

**Willard Storage Battery Co.:** "Our eight machines in almost every case paid for themselves in six months. Do not require expert operators."

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**Lindsay Factories, Ltd.:** "An unskilled youth does the work of six trained mechanics."

Hundreds of similar examples could be cited if we had the room.

## Automatic Magazine Fed Screw Driving Machine

It is from the experience of others that we gain wisdom—otherwise we would still be living in caves. So why not fall in line and remove the handicap of excessive screw driving cost? If your competitor has these automatic magazine fed machines, meet his move. If he hasn't, beat him to it.

Tell us the dimensions over all of your work and the gauge and length of screws you are driving, and we will send you description of the machine that will best suit your requirements.

**The Reynolds Machine Company**  
Dept. H. H., Massillon, Ohio



Style "C"



The Hinge



Style "Y"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"



Style "H"

### GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

**GITS BROS. MFG. CO**

1940 SO. KILBOURN AVE., CHICAGO

## Rollway Positive and Semi-Positive Pumps

Valveless—Cannot Clog—Self Priming  
No Loss of Prime—Low Speeds—Large Volume



For all liquids. Particularly adapted to machine tools.

Deliver 30 per cent greater volume than other types for size of intake and outlet.

Rolling motion of pumping mechanism eliminates wear caused by scraping of parts against pump chamber.

Last longer. Best service, cheapest service, and trouble-proof.

Intakes and outlets  $\frac{1}{8}$  to 2".

Capacity, 2 quarts to over 150 gallons per minute.

*Let us solve your pumping problems. Write for literature*

**Michigan Machine Co., Detroit,  
Michigan**

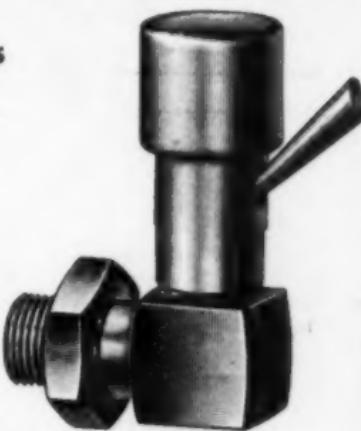
# TUCKER'S

## Dust Proof Elbow Oilers

Patented March 30-1915



Closed



Open

For Spring Shackle Bolts or Any Other Bearing Requiring a Right Angle Oilier

No. 25 Style G cup with  $\frac{1}{8}$ " pipe thread, mounted in a  $\frac{1}{8}$ " pipe elbow having a straight thread lock nut to bind device to structure when in position. Elbows are made from  $\frac{1}{2}$ " square Brass Rod leaving a substantial head for wrench hold for attaching. No need to use never slip pliers to distort and mar the article. Oil Port is absolutely protected from dust. Cap member can be raised with oil can spout. Cup member is round with no projections to prevent wiping with a rag before oiling. No hinge joints or wire springs exposed to the weather.

*Furnished in Plain Brass or Nickel Finish*

Manufactured by

**W. C. & F. C. TUCKER, Hartford, Conn.**

# You Need Less Oil

When using a Curtis Oil Extractor



No. 400—Capacity: 2 Bushels

It helps you to make a better showing on the profit side of the ledger. The price of the machine is returned in a few months; after that the oil saved from chips, shavings and waste is pure gain. The three sizes are easily operated, sturdily built and have ball bearings.

*A Curtis reduces oil bills and expense.  
Write for details and prices.*

**Albert B. Curtis Estate**  
Box 44      - - -      Worcester, Mass.

## DO You Use AIR?

### THE POWELL AIR GUN VALVE

JUST PRESS  
THE BUTTON



Buy  
POWELL  
AIR GUNS  
Keep  
Clean

CLEANS  
WORK BENCHES  
AND  
MACHINE TOOLS  
MADE IN SIZES  
 $\frac{1}{8}$  TO 1"

ORDER A SAMPLE  
THE Wm. POWELL CO.  
1200 DRAPER ST.  
CINCINNATI, O.



# Terrell's Steel Lockers

Mean  
Economy  
and  
Modern  
Efficiency

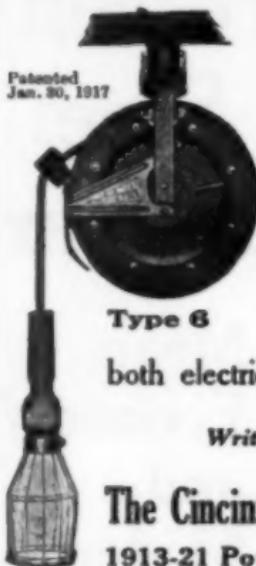
PERMANENT, FIRE-PROOF shop furnishings afford the same degree of economy and modern efficiency as permanent, fire-proof buildings.

TERRELL'S STEEL LOCKERS have the economy of permanent, fire-proof construction, and they are efficient because (1) They are sanitary; (2) They keep their contents safe from meddlers and thieves; (3) They add much to the prosperous appearance of the shop, and (4) They increase the good will of self-respecting workmen. They are made in a variety of sizes and styles, single or double tier, and adapt themselves to available spaces and meet special conditions at moderate cost.

*Write for estimate on filling your requirements  
The obligation is ours to make good—not yours to buy*

**Terrell's Equipment Company**  
Hall & Division Sts., Grand Rapids, Mich.

Patented  
Jan. 30, 1917



Type 6

## "Autex" Extension Reel

Rapidly finding a place in the largest industrial plants, machine shops, service stations, etc., in the U. S. Used for both electric lamp and power extensions.

*Write for descriptive circular*

**The Cincinnati Specialty Mfg. Co., Inc.**

1913-21 Powers St.,

Cincinnati, Ohio

## One Man And The Canton Crane



**Replace The Labor  
Of 6 to 10 Men**

For handling and hoisting heavy pieces, castings, motors, tools, etc., to or from any part of the shop required, it is without a rival. It can operate in corners where your overhead crane cannot reach. Many firms call it: "The Handiest Tool in the Shop". Often pays its cost merely in avoiding workmen's compensation claims caused thru accidents in moving heavy pieces about the shop.

*Many sizes. Write  
for Booklet E-8*

**Canton Foundry and Machine Co.**  
Canton, Ohio

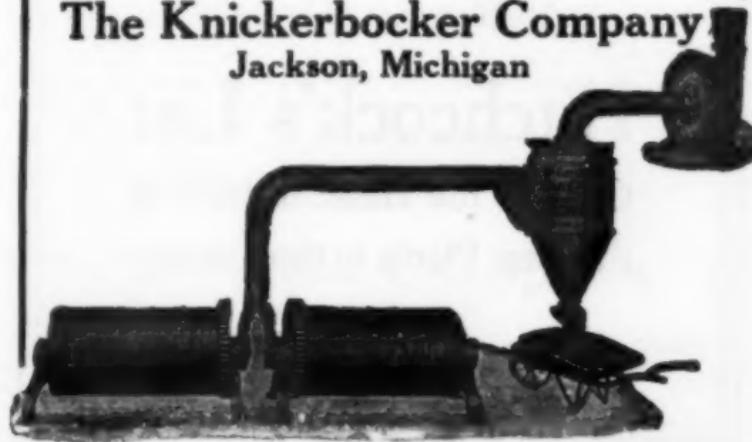


**Knickerbocker asks you  
to note that the "Rarefied"  
Dust Collectors have these  
points of superiority:—**

- ¶ The suction never varies.
- ¶ They collect *all* the dust heavier than air.
- ¶ The material collected is discharged *automatically*.
- ¶ There is no cleaning out by hand.
- ¶ There is no filling up of cloth or screens.
- ¶ There are no moving parts.
- ¶ There is no cutting out of fan.
- ¶ The inner separating walls are interchangeable.
- ¶ There is no undue wear on Collector parts.
- ¶ The cost of repairs is very slight.

*Their superiority has made them favorites in many  
big plants. Write for Booklet and list of users*

**The Knickerbocker Company**  
Jackson, Michigan



Made in five sizes, for balancing anything that turns on a shaft, up to 10,000 lbs. weight



### Improved Anderson Balancing Ways

Always ready, without adjustment, to accurately balance anything that turns on a shaft up to 10,000 lbs. Ball bearing. Sensitive.

"Swing"	20"	40"	60"	72"	96"
Greatest distance between standards.....	20"	30"	30"	66"	88"
Capacity in lbs.....	1000	2000	2000	5000	10000
Apprx. shipping weight.....	45	90	150	350	650
Code.....	Lead	Lead	Brass	Brass	Brass

Any of above can be furnished with shafts extended.

**Anderson Bros. Mfg. Co.**  
1915 Kishwaukee St., Rockford, Ill.



## Hitchcock's List

Goes to the Heart of 96% of  
the Best Plants in the Country

The above statement is the result of careful mail inquiries directed to thousands of the larger tool-using concerns.

Make Work A Pleasure

# Use Collis Quality Tools



No. 100-D Standard Type Sleeve



No. 100 Use-Em-Up Type Sleeve

## Standard and Use-Em-Up Types Drill Sleeves and Sockets

**NOW** is the time to put those Drills with twisted tangs or broken shanks back to work. It's easy with the

### Use-Em-Up Type Socket

The Use-Em-Up Type Socket is the only positive drive for Drills, Reamers, etc. Put those Drills with twisted tangs and broken shanks back to work. Just grind a flat on the remaining portion of the shank (time two minutes) and they will do more and better work than when new. The Use-Em-Up drive enables you to speed up your machine and take heavier cuts. As long as there is three-fourths of an inch of the shank left, it can be used in a Use-Em-Up Type Socket.

## The Collis Company

MANUFACTURERS

Clinton

Iowa

*Send for Our General Catalogue*

# COOPER

## UNIVERSAL JOINTS FLEXIBLE COUPLINGS

"YOU CAN'T BREAK THEM OR WEAR THEM OUT"

Smooth; neat; only 5 simple parts; large oil space; working surfaces case-hardened; no limit to size; guaranteed stronger than shaft at any angle.

6 PATENTS



Three hundred years ago Hooke invented the Universal Joint with fixed centers. Three hundred years have elapsed and still the Hooke type of universal joints are burning up power and breaking in operation.

The Cooper Patented Universal Joint with no fixed centers is just as frictionless as the crosshead of an engine at any angle. "You can't break them or wear them out" with shafts joints are bored for. Perfect lubrication at any speed.

Sizes  $\frac{1}{4}$ " to 2" in stock bored to fit YOUR shafts.

*Send for one and try it out*

**Cooper Flexible Transmission Co., Inc.**  
1723 8th Ave., Brooklyn, N. Y.

## Time-Tested Universal Joints



Efficient to  
an angle of  
45 Degrees

Vanderbeek  
Universal  
Ball Joints  
for higher  
angle drives

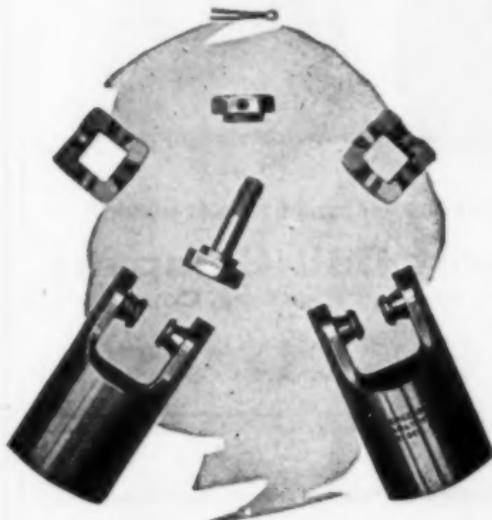
Sizes  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{5}{8}$ ,  $1\frac{1}{16}$ ,  $1\frac{1}{4}$ ,  $1\frac{5}{8}$ ,  $1\frac{3}{4}$ ,  $2\frac{1}{8}$  and  $2\frac{1}{2}$  in.

Tested by time, they have proven dependable on all kinds of heavy, fast machines. Wearing contacts are hardened steel; stem ends are strong and well braced. Self-oiling and dirt-proof—just put them on and they take care of themselves. *Complete data upon request.*

**Ainslie Machine & Tool Works**

Successors to Vanderbeek Tool Works  
**HARTFORD, CONN.**

Let Us Solve Your  
**Universal Joint Problems**  
As We Have For Others



One large manufacturer gave us an order for **\$17,000** worth of *Borgeson Universal Joints* after testing them with 65 other makes under maximum strain

Sizes  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ , 1,  $1\frac{1}{8}$ ,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2 &  $2\frac{1}{2}$  inch

They have great torsional strength.

The construction is simple and scientific.

No pivotal floating pins or parts to work loose.

The yokes are ground concentric with the bearing pins and run true with each other.

Of the 15,000 Borgeson Joints sold last year we were not asked for a single replacement.

Write for price list and more complete information. We believe we can solve your Universal Joint problems to your entire satisfaction if given the opportunity.

**The Borgeson Manufacturing Co., Inc.**  
Torrington, Conn.

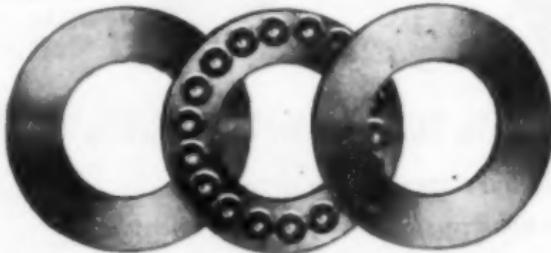
# Abbott Steel Bearing Balls

High Grade—Highly Finished



We shall be glad to have your inquiries and make estimates

**The Abbott Ball Company**  
Elmwood District, Hartford, Conn.



## GWILLIAM THRUST BEARINGS

Flat or Grooved Races  
from  $1/4$ " Shaft Dia., Up

ONE BEARING—OR ONE THOUSAND

**THE GWILLIAM COMPANY**  
23 FLATBUSH AVE., BROOKLYN, N. Y.

OVER 50,000 MILES  
NOW REPORTED ON

## “WHITNEY”

*High Efficiency*

FRONT END  
MOTOR CHAIN DRIVES.

AND STILL IN GOOD CONDITION



Not one of these  
chains has been  
known to skip a  
sprocket tooth.

Chains having a  
high mileage save  
inconvenience  
and frequent re-  
placement ex-  
pense.



The Whitney Mfg. Co.  
HARTFORD, CONN.

# CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and  
Coventry Chairs, Block, Roller and  
High Speed Silent types on hand

*CATALOG*

**CULLMAN WHEEL CO.,**  
1359 ALTGELD STREET  
CHICAGO

# GRIND IT On a BLOUNT

20" Wet Tool Grinder



*Catalog on request*

Blount Wet Tool Grinders are built in three sizes for 14", 20" and 30" Grinding Wheels respectively.

**J. G. BLOUNT CO., Everett 49, Mass.**

# Ott Grinders

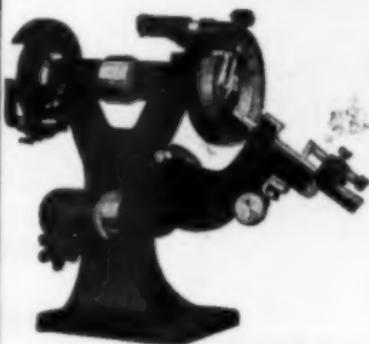
Combine the essentials of  
ACCURACY and RIGIDITY  
with SIMPLICITY of design

Simplicity accounts for their price, and for  
their popularity among good operators.

5<sup>1</sup>/2" x 18" Plain — 10<sup>1</sup>/2" x 32" Universal — 6<sup>1</sup>/2" x 6" Internal

**Ott Grinder Company**  
200 West Tenth St., Indianapolis, Ind.

Keep Up Your Tools  
Keep Down Your Costs



with  
*Grand Rapids  
Drill Grinders  
Tap Grinders  
Universal Grinders*

which

Give Perfect Results  
Catalog on Request

**Grand Rapids Grinding Machine Co.**  
17 Ottawa Ave., N. W., Grand Rapids, Mich.



*Greenfield*  
TRADE MARK REG. U. S. PAT. OFFICE

## No. 2 Universal

A VERSATILE GRINDER. Head swivels on Standard. Standard swivels on Base. Slides turn *with* Standard, not around it.

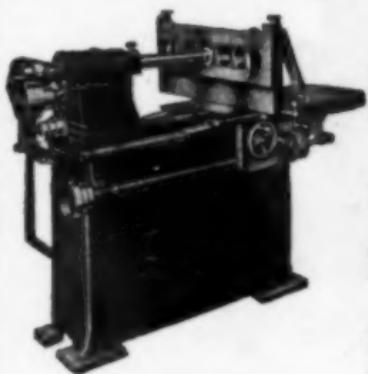
A substantial, well built grinder equipped with a large assortment of convenient attachments designed for handling a wide variety of work.

*Ask for particulars*

**Greenfield Machine Company**

**Greenfield, Mass., U. S. A.**

For regrinding tractor, truck  
and automobile engine cylinders



## SCHMIDT Internal Grinder

For regrinding all makes and sizes of cylinders and cylinder blocks.

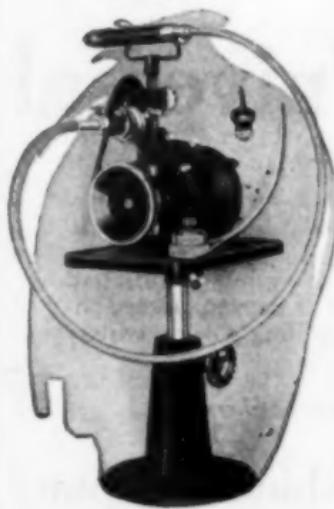
Regrinds six Ford blocks in a day—larger cylinders in proportion.

This simple, rugged, dependable and highly efficient machine is indispensable for automobile and tractor repair shops.

*Let us post you on this money-earning tool*

B. L. Schmidt Co., Dept. A 8, Davenport, Ia.

Type M 2



**Strand**  
TRADE MARK

## The STRAND Flexible Shafts And Equipments

are well known all over the world for their peerless efficiency in shops wherever metal is used.

*Made in several sizes*

N. A. Strand & Co.  
Machinery Hall  
Chicago

We build them

# Reid No. 2 Surface Grinder

A Precision Tool of Highest Practical Value

Grinds  
18" Long  
6" wide  
11½" High

And don't  
fail to  
ask us  
about the

Reid  
Universal  
Angle  
Fixture

*Write for description of this rigid, productive grinder*

**Reid Bros. Co.** 59 Park St.  
Beverly, Mass.

Export Department, 77 Broad St., New York City  
English Agents, Oliver Machinery Co., Ltd., 201-03 Deansgate, Manchester, Eng.

73



Not only is this machine exceptionally rigid, with a true-running wheel and the closest adjustments, but experience and care have enabled us to make those features as nearly permanent as is humanly possible.

*All castings*, made of clean gray iron, are roughed and seasoned, then finished and scraped to master plates—they are permanently set.

*The spindle*, which is hardened, ground and lapped, runs in phosphor bronze boxes, with adjustments for wear and end play.

*A compact spring curtain* renders wearing surfaces impregnable to dust—prevents accumulation of dirt and grit—extremely important in practical operation.

No. 190 "WELLS"  
Universal Cutter  
and  
Reamer Grinder

Will handle practically  
all grinding require-  
ments of the small shop  
at a moderate cost.

*Write for descriptive  
data sheets*

MACHINE TOOL DIVISION



GREENFIELD, MASS.



HMT 438



## CLOUGH REAMERS

Style B Reamer, shown in cut, has all-steel blades of either carbon or high-speed steel. Made in sizes  $\frac{3}{4}''$  to  $6''$ . Sizes  $1''$  to  $6''$  kept in stock. Also three other styles of high-grade Machine Reamers, as well as Expanding Hand Reamers of superior quality.



### Counterbores

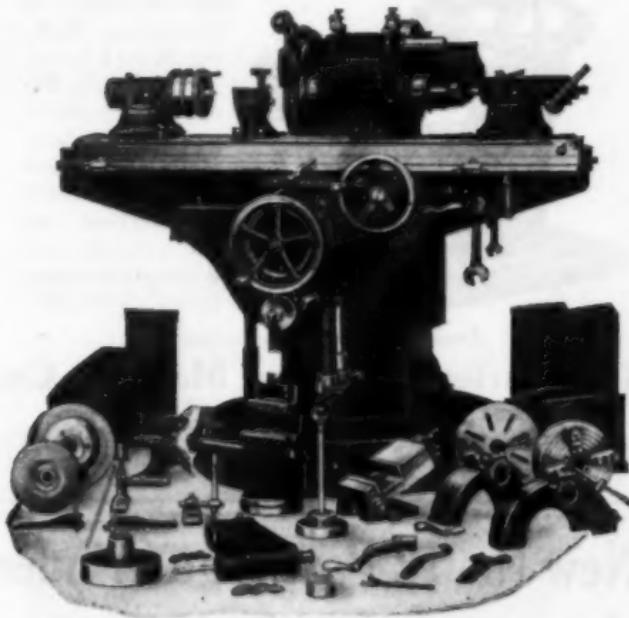
DO NOT use dull tools when this Counterbore can be sharpened as easily as a twist drill. Has removable center.

*You should have our Small Tool Catalog. Your address?*

**R. M. CLOUGH, Meriden, Conn.**

# Thompson 10x36 Universal Grinder

## For ALL Grinding Operations



Whether it is plain grinding for straight or taper work between centers, surface grinding, edge grinding, die grinding, cutter or internal grinding, the Thompson Universal does any or all of it easily, accurately and economically. The grinding wheel is in a fixed position—an exclusive feature, while the table carrying the work is adjustable to any desired position relative to the wheel. It is a Universal Grinder with the efficiency of specialized machines.

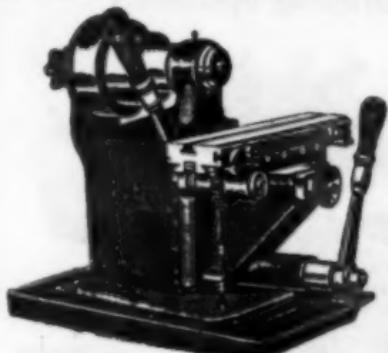
*Write for specifications and descriptive folder, which clearly illustrates the various grinding operations*

### OUR SELLING REPRESENTATIVES:—

Motch & Merryweather Mchy. Co.	Riverside Machinery Depot, Detroit, Mich.
Cleveland, Ohio	Coghill-Kirkby Mchy. & Sup. Co., Toledo, O.
Manning, Maxwell & Moore, Inc.	Wayne Mchy. Co., Ft. Wayne, Ind.
New York, Philadelphia, Pittsburgh,	Dayton, Ohio
Buffalo, Cincinnati,	Chicago, Ill.
St. Louis, Seattle	Minneapolis, Minn.
Boston, Mass.	San Francisco,
Hill, Clarke & Co.,	Los Angeles, Calif.
Kemp Machinery Co.,	
Baltimore, Md.	
	FOREIGN:
Bovis & Edwards Pty., Ltd.,	Selson Engineering Co., London, Belgium,
Melbourne, Sydney	France, Italy

**THE THOMPSON GRINDER CO., Springfield, Ohio**

# Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

*Send for descriptive circular*

**The Carter & Hakes Machine Co.**  
**West Winsted, Conn., U. S. A.**

AGENTS—for New England and New York, Hill, Clarke & Co.  
WESTERN AGENTS—Marshall & Huschart Machinery Co.,  
Chicago, St. Louis, Indianapolis.

## New No. 12 Partridge Grinder



—With Guards

Also Bench,  
Column and  
Cabinet Grinders;  
Polishing Lathes;  
Light Punch  
Presses;  
Hollow Mills;  
Countershafts;  
Bench Tapping  
Machines and  
Saw Mandrels.

**E. O. PARTRIDGE, 2041-2049 CHICAGO**  
W. Lake St.,

How Would You Like To  
Get Away From  
**Diamond Expense?**

*Then Ask Us About*

**The Precision Truing Machine**  
A Device for Truing and  
Dressing Grinding Wheels



**Can Be Applied To Any Cylindrical Grinder**

*Ask for Circular H-7*

**The Precision Truing Machine & Tool Co.**  
Cincinnati, Ohio

# Whitney Cylinder Grinder

For grinding all kinds of Gasoline Engine Cylinders as well as work too large or too heavy to revolve.

Machines furnished to grind holes from 3" up to 7" diameter and 14" deep. Also equipped to grind holes as large as 14" diameter and 20" deep.

*Write for new catalog*

**BAXTER D. WHITNEY & SON**  
Incorporated  
WINCHENDON, MASS., U. S. A.



# Miller Radius and Angle Grinding Wheel Dresser

Eliminates Guesswork



The MILLER is the latest modern type of Grinding Wheel Dresser and insures the quick and accurate dressing of curved, beveled and irregular shaped faces on grinding wheels. This has long been a serious problem and has involved a considerable loss of time, labor and money.

Forms radii from  $0^{\circ}$  to  $1\frac{1}{4}^{\circ}$  concave or convex. Also dresses any angle or form desired. Grinds wheels up to  $12^{\circ}$  in diameter. Tool post has three splines, so the diamond may be set at right angles with travel of the side for dressing angles. Also has  $2^{\circ}$  centre height adjustment. Distance from measuring post to pivot centre is  $3^{\prime\prime}$ , and simple addition or subtraction gives the exact concave or convex required, cutting out guesswork and ALL past wasteful methods.

*For economy and improved output it is unrivaled*

## Otto A. Miller & Sons

408 Moffat Bldg., Detroit, Mich., U. S. A.

# DETROIT CENTERLESS CYLINDRICAL GRINDERS

For grinding straight cylindrical work without the use of centers



Grinds in rows continuously, greatly increasing production.

Feeds straight thru guide blocks, and pieces rotate slowly, insuring work that is round and perfect. Grinding surface of wheel over 200 square inches.

Capacity,  $\frac{3}{4}$ " (and smaller) to  $1\frac{1}{4}$ " diameter, in various lengths.

## Figure out your production

The complete Production Table, shown in our literature, enables you to figure production time on all diameters. The following sample figures show four diameters only:

Diameter	Length	Ft. of Pins per hour	Pos. per hour
$1\frac{1}{4}$ 1.250-1.249	4	20	60
1 1.000-0.999	$3\frac{1}{4}$	22	70
$\frac{3}{4}$ 0.750-0.749	$3\frac{1}{2}$	24	82
$\frac{1}{2}$ 0.500-0.499	2	28	168

Let us grind 25 samples free; and write for description



6525-45 St. Antoine St.,

DETROIT, MICH.

# Two Great Cost Reducers

## Manhattan Massive Surface Grinder



Compact, yet so rugged and rigid that it has no chatter whatever. Body casting affords most clearance where it is most required. Graduated dials on vertical and transverse feeds are graduated in thousandths of an inch. Spindle without overhang at wheel, end runs in extra large phosphor bronze bearings, insuring increased capacity for heavy cuts. It is *silent, precise and powerful*.

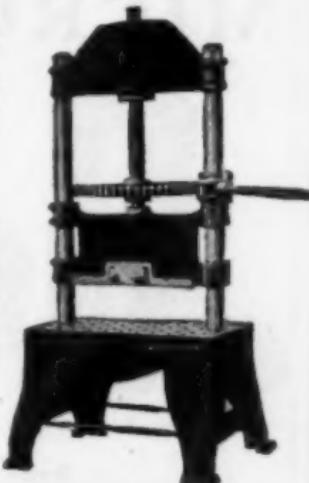
## Hand Screw Press for Die Makers

Unlike ordinary punch power presses which require two or more men to handle them in die making operations, this MANHATTAN is a strictly *one-man machine*.

It also insures perfect alignment of punch and die, which cannot be always obtained with a punch press costing *ten times as much*.

Unsurpassed for rapid and accurate die making.

*Guaranteed up to 80,000 lbs. pressure.*



*Send for full description of these economy machines*

**Manhattan Machine & Tool Works**  
Dept. A., Grand Rapids, Mich.



## Hartford Taper Gage

### The Tool That Detects All Taper Inaccuracies

Simply place this tool on the floor or on a bench—whichever is the more convenient—and adjust it to your height.

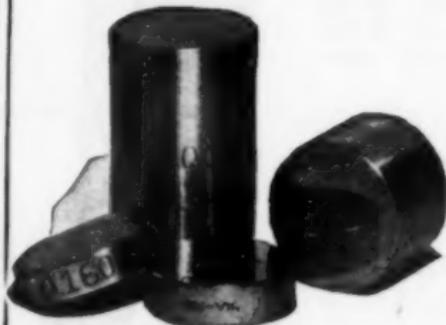
When you have put your taper in the gage, you can tell at a glance, by means of the light from a window or an incandescent light, just where are any inaccuracies, down to less than 1-1000 of an inch.

This gage is adjustable over a wide range—from No. 0 to No. 14 B. & S. taper—so it will undoubtedly fit any tapers that you have.

*One concern had one and ordered 32 more.  
Write for complete details of this time-saver.*

**Hartford Special Machinery Co.**  
285 Homestead Ave., Hartford, Conn.

## MICROGAGES PAY 500%



Van Keuren Microgages.

The Individual  
Set ..... \$ 7.50  
The Shop Set ..... 50.00

They are wonderful tools that surpass the expectations of everyone.

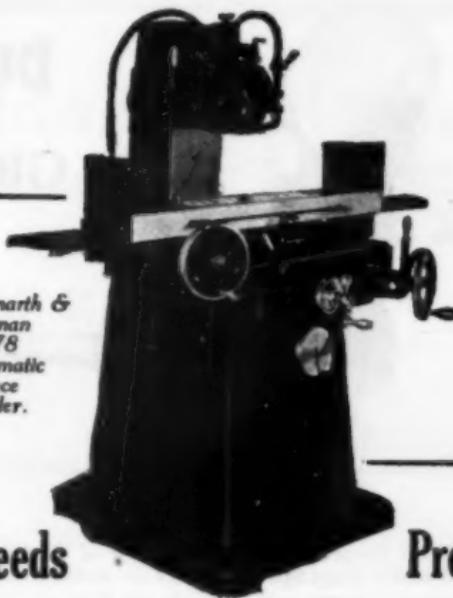
*Write for Circular 33*

Light Wave  
Measuring  
Outlets

**THE VAN KEUREN CO.**  
362 Cambridge St., Allston, BOSTON, MASS.

Modern  
Measuring  
Tools

*Wilmarth &  
Morman  
No. 78  
Automatic  
Surface  
Grinder.*



## Speeds      Production

The No. 78, pictured above, is built for Precision Work, with reserve rigidity and strength to take .050 to .070 of an inch cut when desired.

This surface grinder is very heavily constructed to eliminate vibration and its resulting chatter, and can be ordered in either Wet or Dry design. The No. 78 is adaptable for gauge and tool work and each machine is equipped with a diamond wheel-truing device, permanently and conveniently attached for instant use.

*Check your files and see if  
you have our latest catalog*

**Wilmarth & Morman Co.**  
Master Grinder Makers  
1185 Monroe Ave., N. W., Grand Rapids, Mich., U. S. A.



## DUMORE No. 1 GRINDER

**T**HE Wood Turret Machine Company of Brazil, Indiana, uses the DUMORE High Speed Grinder in many ways which readily show its real merit — in grinding the head of the Wood Turret Lathes for example, and in finishing spindle ends, etc.—the high speed of the DUMORE giving a result much superior to that obtained from slow speed grinders.

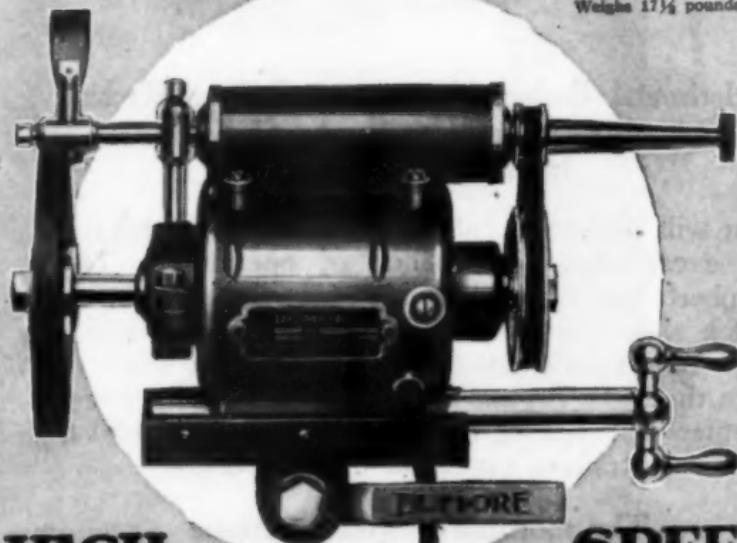
Here is a tool in which perfect running balance is combined with correct cutting speed. With a DUMORE in the shop there is no costly tearing down of jobs — no wasteful delay. It is set up easily and quickly wherever it is needed. The DUMORE can solve your grinding problems. It is the only tool on which you may surely rely for speed and accuracy.

Your dealer sells DUMORE Grinders  
Ask him for a demonstration

**WISCONSIN ELECTRIC COMPANY**  
4329 Sixteenth Street, RACINE, WISCONSIN

# DUMORE

Machine Tool Builders  
Use the **DUMORE**

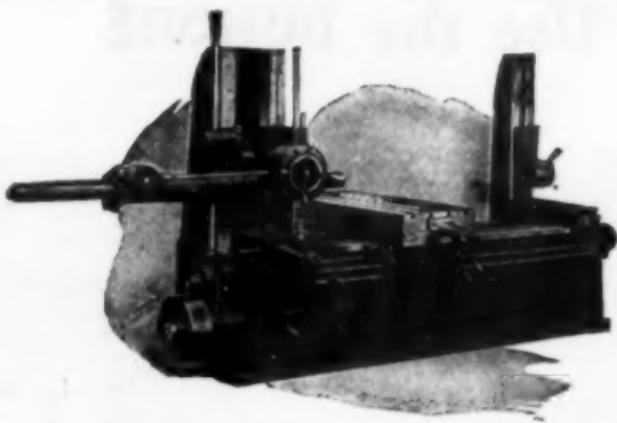


**EQUIPMENT A**

For general tool room use.  
Includes High Speed Internal Spindle A with reach of 3 inches. 30,000 R.P.M.  
Comes fully equipped.  
Weighs 17½ pounds.

**HIGH SPEED  
GRINDERS**

# High Quality and Unusual Efficiency—*that's the Lambert*



**A Horizontal Boring, Milling and Drilling Machine  
that's as Accurate as Human Skill and  
Ingenuity can make it**

You will like and profit by its great simplicity and the exceptional convenience of operation. The Lambert has two adjustable start-and-stop levers which slide along the horizontal bars—one starts, stops or reverses any feed, and the other starts or stops the bar. Bronze bushings and all-steel gearing. Verniers for making head and outer support adjustments. Arranged for motor drive on order.

## **The Complete Specifications**

are interesting and instructive. Glad to mail them to you, as we're sure you will be glad to read them. Let's have your name and address today.

**Carroll Foundry & Machine Tool Co.  
Bucyrus, Ohio, U. S. A.**

# Avey No. 3

## Heavy Duty Ball Bearing Drilling Machine

Designed for quantity and quality production on all classes of drilling. Much higher speeds can be obtained than ordinarily used for holes from  $\frac{3}{4}$  in. to  $1\frac{1}{8}$  in., which, combined with finer feeds, make a production increase of from 25 to 50% possible.

Built in combinations of one to six spindles with plain hand or power feed. Ball bearings throughout.



Our No. 3 machine provides maximum speeds for work up to  $1\frac{1}{8}$  "

*Write for Bulletin containing details*

**The Avey Drilling Machine Co.**  
Cincinnati, Ohio



## Accurate Work from a Heavy Drill

The Rockford Mechanic's Drill is a heavy machine built to stand the strain of continuous accurate service. It has a wide range of speeds and feeds that adapts it to any kind of job going through the shop.

These are its dependable features:

**Sliding Head  
Back Geared**

**Positive Feed  
Automatic Stop**

There is more to the story of this drill. Write us for further details.

Made by the Rockford Machine Tool Company, Rockford, Ill.

Distributed by

## The Fairbanks Company

Administrative Offices, NEW YORK

Branch Houses

Albany  
Baltimore  
Birmingham  
Boston

Bridgeport  
Buffalo  
Chicago  
Hartford

Newark  
New Orleans  
New York  
Paterson  
Philadelphia

Providence  
Rochester  
Scranton  
St. Louis

Syracuse  
Washington  
Havana  
Kingston

*The*

# FAIRBANKS

Company

Rockford Auto., Tools & Wheelbarrows, Poles, Saws & Power Tools, Steel & Metal Products, Automobile Parts, Garage Equipment, Lumber, Edwards Electric Motors, Machine Tools, Steel Casting Foundries.



Three Sizes  
1 to 8 Spindles

## Economy's Ally—

Waste motion wastes money; convenience saves it. One of the most convenient machines on the market is the Sipp Quick Change Speed Sensitive Drill Press on which all moves are made from natural position; speed changes are made in two seconds, change of belts in ten. All transmission gears, ball bearings, etc., run in oil baths and require no attention for months at a time.

*Write for complete description*

**The Sipp Machine Company**  
Keen Street, PATERSON, N. J.

Make a Multiple Spindle Drilling Machine out  
of your Single Spindle Drill Press at small cost



## The Buhr Multiple Spindle Drill Head

With 3 to 12 Spindles

Sets-ups can be made for circular, square, rectangular or staggered positions, and a complete pattern drilled in a single operation.

Insures absolute duplication or interchangeability of patterns.

The "Buhr" is as economical for drilling holes in heavy stock as the punch press is on thin metals.

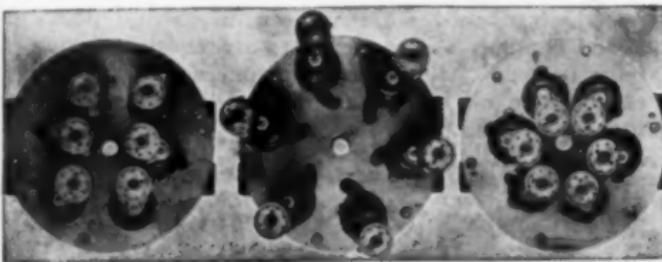
Saves in drilling time; saves shifting the piece, which usually takes more time than the actual drilling; saves

in first cost; saves in operating cost; saves in floor space. In fact, it affords such a big economy that you lose money every day you delay its installation. So why not now?

*Just say the word, and we'll post you without obligation*

**Nelson-Blanck Mfg. Co.**  
Detroit, Mich.

New York Office: Grand Central Palace





With  
One  
to  
Eight  
Spindles

For  
3/4-in.  
Drills  
and  
Smaller

## H. & W. Drilling Economy

A few per cent saved in production costs means a few per cent more on the right side of the ledger. Henry & Wrights economize only on sensitive drilling, but there they have fairly revolutionized costs. A gearless power transmission with frictionless bearings and our scientific Feed and Speed Chart are both factors.

*The Catalog tells the whole story; write for it*

**The Henry & Wright Mfg. Co.**  
760 Windsor St., Hartford, Conn.

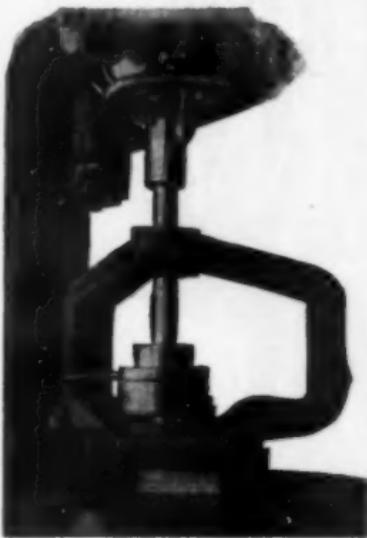
New York Office, 136 Cedar St.

OVER-SEAS REPRESENTATIVE



Principal Foreign Offices: Paris, Turin, Zurich, Barcelona

# Spot-Facing on a Drill Press



*A Mummert-Dixon Facing Head makes this difficult task as easy as drilling a hole*

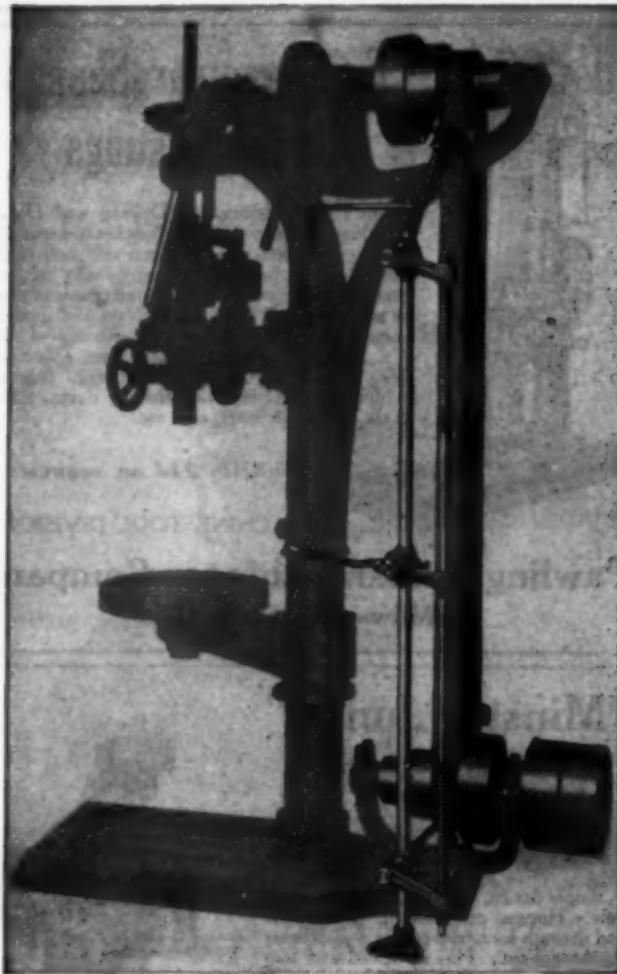
It often is necessary to face a spot or boss and drill a hole in it, which is not uncommonly accomplished by using two machines. This requires two settings and nice workmanship to make a good job.

With the Mummert-Dixon Facing Head, you use only one machine, your drill press, and one setting for both operations. Isn't that quicker, and cheaper, and better?

That is only one way in which these facing heads save time and cost. They operate on lathes, milling machines, boring machines, any tool that has a spindle or will drive a bar, doing many things easily and quickly that by other methods are difficult and slow.

*We have illustrations of different applications of these facing heads which we know will interest you. May we have your permission to send them?*

**Mummert-Dixon Co.**  
HANOVER, PA.



Instant changes of speed for  
drill presses increase production  
and reduce compensation to injured  
employees.

*Details in Circular H-D*

**The Kremer-Cummins Machine Company**

1833-35 East 55th St., Cleveland, Ohio



## For Irregular Shaped Large Castings

With P & H Horizontal Drilling and Boring Machines you can drill 4, 6, 8 inches horizontally, you can drill and face; you can drill and back-face; drill and bore on long and bulky sections; you can save money and do some classes of work in ways you will find far in advance of average methods. Used all over the country—Crane Co., Bucyrus, Hanna Engineering, Goodman Mfg. Co., Worthington, Nordberg, Ingersoll Milling, Illinois Steel, Oberberger Forge, Elms, Falk, Allis-Chalmers, etc., etc.

*Bulletin 214 on request.*

MACHINE TOOL DIVISION

**Pawling & Harnischfeger Company**  
in Milwaukee Since 1884

### “Minster Junior”

Especially designed for  
shops requiring a

### Large Production

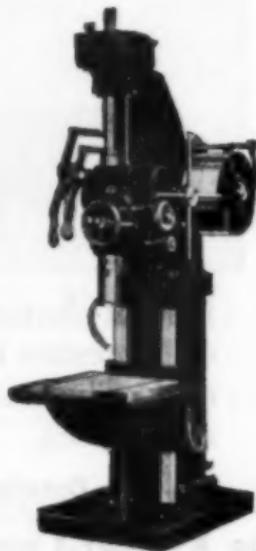
A simple design, with as few parts as possible. Rugged construction, with power and strength for heavy boring. Ball bearing throughout. Has six speed and four feed changes, and change of gears will provide any speeds and feeds. Tapping attachment, compound table and adjustable motor base if desired.

These are only a few features of this excellent drilling machine—a tool you should not overlook.

*Just say “Send Bulletin 30.”*

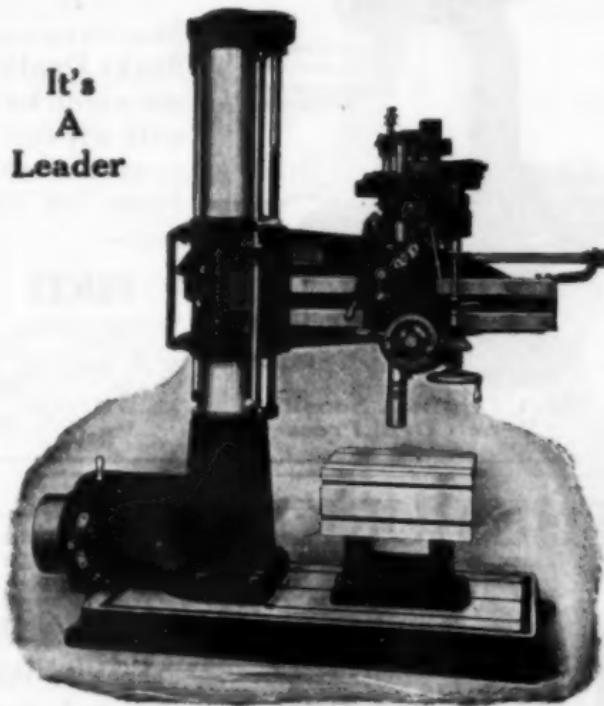
MACHINE TOOL DEPT.

**Minster Machine Co.**  
Minster, Ohio



# You can depend on the Mueller Radial Drill to reduce costs

It's  
A  
Leader



## The Only Radial Drill—

that is equipped with a simple, easy to manipulate, combination **POSITIVE** and **FRiction FEED**. This feed has proven its worth, and is distinctive like all other units of the **MUELLER** radial drill.

You should not be without a **MUELLER** radial drill

**The Mueller Machine Tool Company**

Radial Drills and Lathes.

ESTABLISHED 1902.

CINCINNATI, O.



No. 1 Ten Inch Sensitive  
Bench Drill Press

**Burke Quality  
Excels on  
Fine Points**

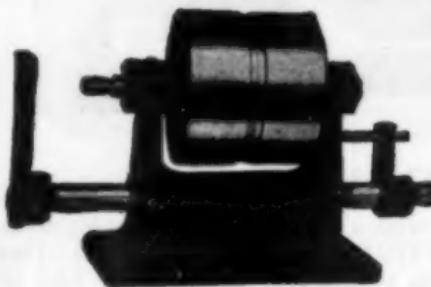
Machines of  
**Burke Quality**  
are never built  
with any name  
cast on the  
frame but our  
own—

**PRICES**

Without swinging table	\$24.
With swinging table	\$28.
Motor Driven	\$65 to \$85.

## THE BURKE

Friction Driven  
Tapping Machines



Eliminate all  
shock to the  
tap and save  
95% of your  
tap breakage

The most efficient machines made for work within their capacity. They are complete in themselves, yet cost less than the average tapping attachment.

*Send us samples or drawings of your tapping  
jobs and let us give you production estimate*

**The Burke Machine Tool Co.**  
297 East 16th St., Conneaut, Ohio

# Model "E-50"

## Sensitive Bench Drill Press

This 2-speed, direct motor drive, high-speed ball bearing drill is especially designed to care for all work, ranging from the smallest to a  $\frac{1}{4}$ " hole.

Standard speeds 2,100 and 6,000 R. P. M.

Main spindle is heat treated and ground to size; it is guided through a quill with support at each end in an annular ball bearing.

End thrust is taken up by an end thrust ball bearing under feed arm.

A quick adjustable table has a working surface  $5\frac{1}{2}'' \times 5''$ , and will take work up to  $4\frac{1}{2}''$  in height.

Surface of table is ground to insure accuracy.

Table has a self-cleaning taper, which keeps the precisely ground main column free from chips, and serves also as a guard to prevent injury to column.

Base has a ground working surface  $4'' \times 6''$ , and will take work up to  $7\frac{1}{2}''$  in height.

Base has oil groove and self-cleaning column support.

Your attention is called to another special feature, which is a spindle lock enabling quick changes of drills without the operator's hands coming in contact with belt or pulleys.

An idler pulley takes up any belt stretch which may occur in the endless woven canvas belt, without impairing sensitiveness of machine.

Front pulley and upper part of spindle are guarded by a semi-tubular guard insuring safety. Machine may be operated either by hand or foot control.



Height over all.....	24"	Spindle feed.....	$2\frac{1}{4}''$
Base.....	$7\frac{1}{2}'' \times 16''$	Weight.....	62 lbs.
Diameter of spindle.....	$7/16''$	Will drill to center of a 6" circle.	

**The High Speed Hammer Co., Inc.**  
Dept. 14 Rochester, N. Y.

Would you like a drill  
that the spindle can  
be operated up and  
down by a foot lever  
as well as by a hand  
lever?

A Foot Lever is very handy  
when boring wood, hard rubber  
or hard fibre.

*Send for a circular of  
this Drill if interested*

**Francis Reed Co.**  
43 Hammond St., Worcester, Mass.

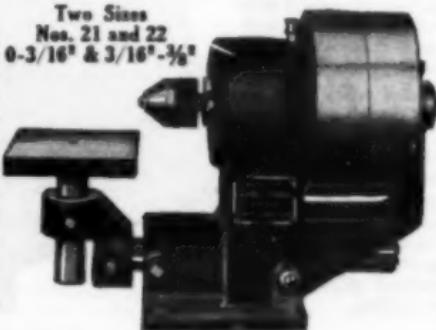


## High Grade Tapping Machine

At a price you can afford to pay

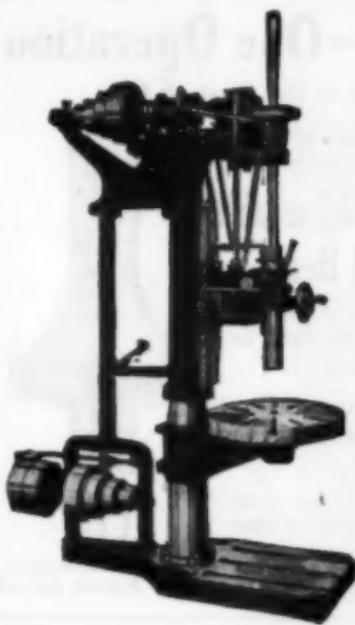
Here is a machine that  
will do your work,  
won't bother you with  
break downs and  
repairs, that your  
operators will like, and  
that you will like because it  
will give you production  
accuracy and a low  
installation and operating  
cost. Cannot give  
details in this space, but  
let us send them to you.  
You'll find it worth  
while.

Two Sizes  
Nos. 21 and 22  
0-3/16" & 3/16"-3/8"



*Your Address will bring them*

**Bicknell-Thomas Company**  
90 Wells Street, Greenfield, Mass.



### C-O 25" Sliding Head Drilling Machine

Back gear, quick change, positive feed; the sliding head well counterbalanced and is raised and lowered by rack and pinion; featuring seven feeds per revolution of spindle from .003 to .095; height, 84"; greatest distance spindle to table, 37", to base, 50"; drills to center 25" circle; capacity, 0 to 2 1/4"; head travel 20"; spindle travel 11 1/4"; table travel, 19". Net weight, 1570 lbs.

## Machinery that Increases Production

In every leading machine shop in the country the blue ribbon of quality is considered due Canedy-Otto machinery.

Every tool that bears the Canedy-Otto trademark is built to increase production, to do its job with the greatest speed consistent with good work.

The Canedy-Otto line is most economical in operation and longest lived. There is real experience built into every tool and considering the quality, the price is unusually low.

## Canedy-Otto Mfg. Co.

*Builders of Automotive Blacksmith and Machine Shop Equipment*

Dept. HMT  
Chicago Heights, Ill.

# Three Holes—One Operation

Or Three Holes at the Cost of One



The saving is so evident  
that the installation of

## Sellew Adjustable Drill Heads

should be a matter of  
course wherever they  
can be used.

Also Special Drill  
Heads with fixed spin-  
dles.

*Write us freely about  
your multiple drilling*



Pawtucket,  
Rhode Island

**SELLEW MACHINE TOOL CO.,**

What the Turret Lathe is  
to the Common Lathe, the

## Turner Turret is to the Drill Press

Regularly built with 4 to 6 spindles,  
also to order. Each spindle carries a  
different tool, which successively and  
automatically registers in precisely the  
same position. A tremendous cost  
reducer.

*Write for Bulletin FH  
and send sketch of your work*



**Turner Machine Company**  
DANBURY, CONN.



#### STOP A MINUTE

Take a good look at the illustration above. It's a 20-inch Drilling Machine.

That **Back Column** is a sure cure for all the drilling machine troubles you've had to put up with in the past. We want to tell you all about that **Back Column** and some other vitally important features of this **Super-Drill**. We know your name. It's "Interested in Greater Production at Less Cost", but what's your address? Here's ours:



**FRONTIER MACHINE TOOL CO., Inc.**  
128 LAKE VIEW AVE., **BUFFALO, N. Y.**

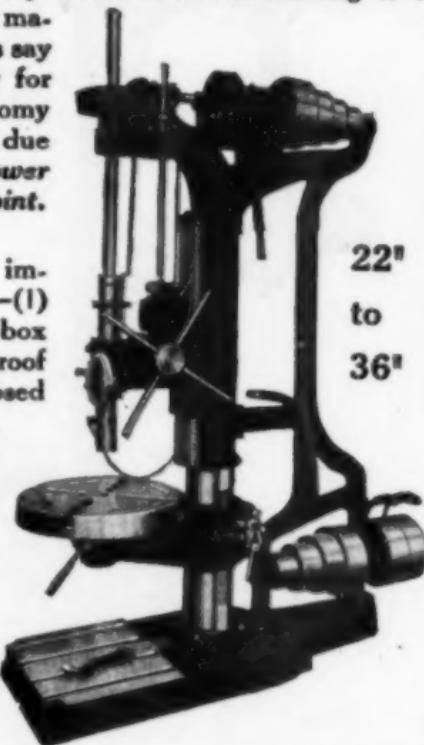
# The "AURORA" Drill

Unrivalled For 100% Economy Output

Its unusually large pulley diameter and the ratio of its gearing explain its great pulling power at the drill point. This distinctive improvement gives it a clear lead over all competitors. After submitting it to strenuous tests, machine tool experts say that its capacity for maximum economy output is largely due to its *pulling power at the drill point*.

Other exclusive improvements are:—(1) Centralized feed box control; (2) Fool-proof table; (3) Enclosed positive gears; (4) Automatic release worm-wheel; (5) Patent Tapping Attachment.

Its superior PULL is only equalled by its CLOSE PRICE.



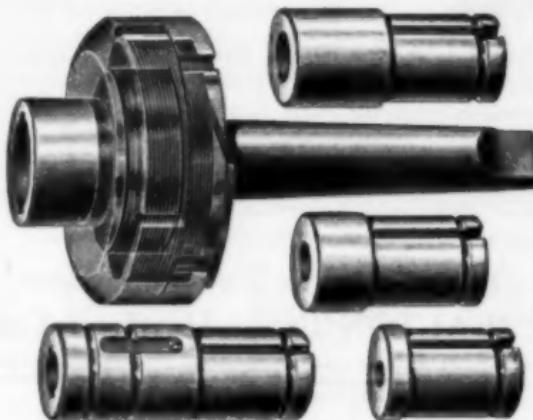
*Without obligation, send for full description and price*

## The Aurora Tool Works

Aurora, Indiana, U. S. A.

# The Safety Friction Driven Drill and Tap Holder

Saves Taps and Affords  
Perfect Tapping



It amply justifies its name "SAFETY," because it will allow you to drive the tap at full speed to bottom of hole without risk of breaking. Whenever it clinches or holds, it instantly stops automatically while spindle continues to revolve.

Without stopping spindle you can change from drilling to tapping, or vice versa, easily and quickly.

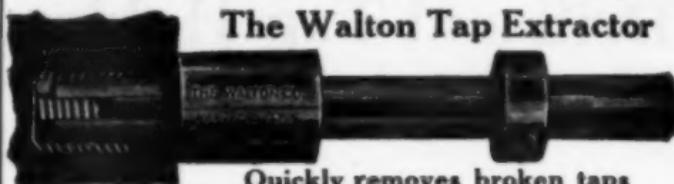
It is the perfect embodiment of simplicity, efficiency and reliability. Four sizes, 0 to  $2\frac{1}{2}$ .

*Give it a try-out on your toughest tapping job—that'll satisfy you.*

**The Beaman & Smith Co.**  
Providence, Rhode Island

# Why Not Laugh At Tap Breakage?

## The Walton Tap Extractor



Quickly removes broken taps

Of all the minor shop accidents, that of taps breaking at or below the surface is one of the most troublesome, on account of its comparative frequency, with loss of time and often injury to the work.

Why not order a Walton Extractor NOW and laugh at tap breakage? Once used, it becomes indispensable. It pays for itself over and over again—often the first time used.

*Sizes No. 8 to 1 1/4". Let us describe and quote.*

**THE WALTON CO., Hartford, Conn.**

### Weigel Double-Wheel "Trukaster"

Has heavy plates and axles. Easiest running, strongest and most durable double-wheel caster made. Lasts three times as long as others.

#### "Kquality Kaster"

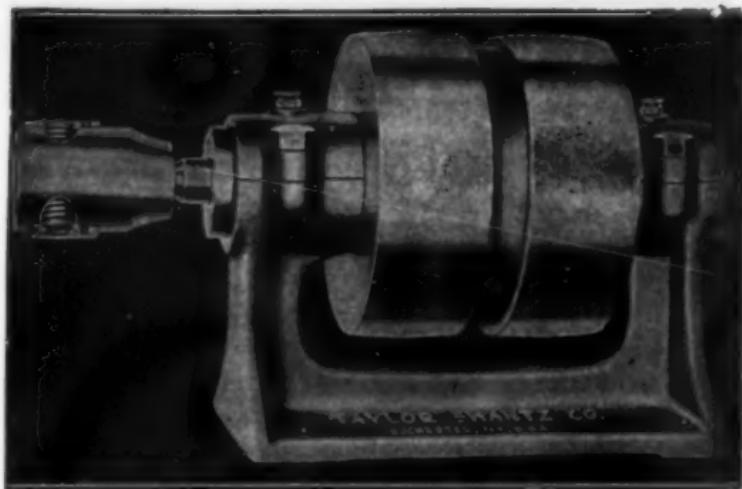
(See Illustration)

The strongest and most durable single caster. Won't crush or break. Swivels on steel machined rollers.

*Write for Price List*

**THE HAMILTON  
CASTER & MFG. CO.  
HAMILTON, OHIO**





# T-S Bench Tapping Machine

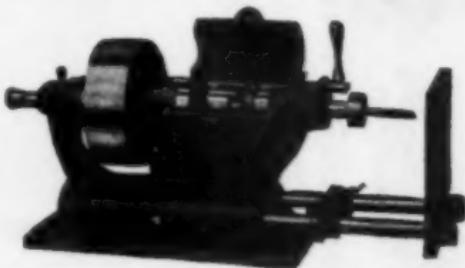
Will save you many dollars  
with an outlay of only a few

**Price \$25 Complete**

Fully equipped, including Jacobs Chuck.  
**No Extras.** Rapidly taps all metals of  
medium thickness with minimum breakage.

**Taylor-Shantz Company**  
480 St. Paul Street, Rochester, N. Y.

## Workwell Tapping Machines



And *Workwell Countershafts* are well constructed machines. They cannot be classed with cheaper makes. If production and construction mean anything to you, send for our latest catalog. It will interest you.

**Workwell Engineering & Mfg. Co.**

Dept. 3. - - - 4143-47 W. Kinzie St., Chicago, Ill.

## It Is Foolishness To Continue Breaking Taps

The most difficult work—including tapping tough metals, blind tapping, and bottom tapping in shallow holes, where a stop on a machine is useless—can be done in absolute safety to taps and work by using a

### Woodstock Improved No-Tap-Breakage Chuck

It automatically releases tap the minute it binds or strikes bottom. Tap breakage is thus positively eliminated, saving material, time and money. Uses standard taps. Made in five sizes.



*Glad to send one on trial*

**Peter Bros. Manufacturing Co.**

115 Railroad St., Algonquin, Ill.

# Rickert-Shafer Friction Driven Tapping Machines



*Reduce  
Costs!*

"R-S" Horizontal Bench Tapping Machines do dependable work up to their capacities in steel. The instantaneous reversing mechanism eliminates all shock to the tools and prevents tap breakage. The friction drive is always under perfect control, and is highly efficient.

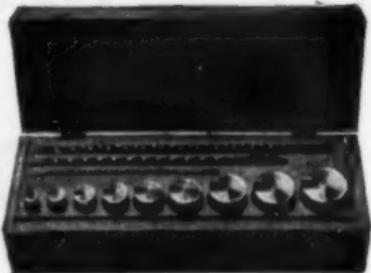
The illustration shows our  $\frac{5}{8}$ " horizontal bench tapper, which we also make in  $\frac{3}{8}$ " and  $\frac{1}{2}$ " sizes, bench or floor type. Can be direct connected to motor. Our verticals are made in sizes,  $\frac{1}{4}$ " and  $\frac{1}{2}$ ". Our radials are made in  $\frac{1}{2}$ ", and save handling of auto and machine tool parts, enabling manufacturers to increase their output.

*Be sure to get a copy of our Tapping  
Machine Bulletin*

**RICKERT-SHAFER CO.,** 1110 Cherry  
Street, **ERIE, PA.**

Your foreman and master mechanic will be interested in  
**The Broach Well Keyway Set**

Used under an arbor press, these tools will cut smooth, accurate keyways, cheaply and quickly.



Patent Pending

*An illustrated circular descriptive of the tool  
and its uses mailed on request.*

**Velco Manufacturing Company, Inc.**  
Greenfield, Mass.

**Since 1905**

**This**

**Keyseater**

Has been in daily commercial use. It is worth your time to write for catalog O and get details on this tool for your work.



**National Machine Tool Company**  
2268 Spring Grove Ave., Cincinnati, O.

# "Catlin" Economy Keyseaters

Rapid—Simple—Accurate

Catlin No. 8  
Cuts  
Keyseats,  
1-16" to 1½"

Stroke  
Adjustable  
Up to 13"



A quality keyseating machine of uncommon simplicity. Its range covers the needs of the average machine shop.

It has the crank motion, which enables the cutter to enter cut during the slow part of the stroke—preferable to the usual rack and pinion drive where rate of travel does not vary.

Carries cutter bars from  $\frac{1}{2}$ " to  $1\frac{1}{8}$ " diameter, self-contained, and incorporating in them the tool relieving and feeding mechanism. Tools are inserted and removed without special tools.

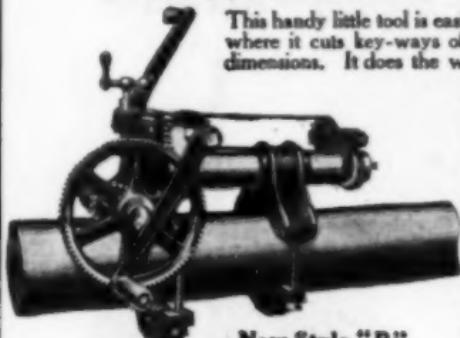
On some classes of work keyseating operations can be duplicated right along without clamping piece or stopping machine.

*For maximum keyseating output at bed-rock  
cost it can't be beat. Your Address?*

**Chattanooga Machinery Company**  
Chattanooga, Tenn.

# A Strong Portable Key-Way Cutter

*Shipped On Free Trial*



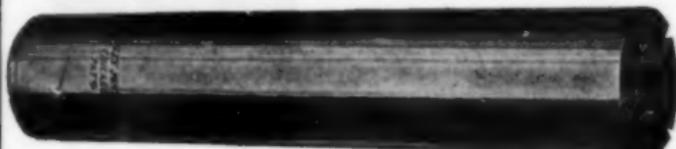
New Style "B"

This handy little tool is easily taken right to the job where it cuts key-ways of just exactly the right dimensions. It does the work quickly, accurately and at minimum cost, saving labor and money. Just clamp the tool to the shaft and turn the crank.

Style "B" has six milling cutters and cuts keyways from  $\frac{1}{4}$ " to 2" wide, in shafting 2 in. to 8 in. in diam. and 12 in. long without re-setting.

*Send for our 30-day Free Trial offer*

**THE BUCHER-SMITH CO.**  
East Liverpool, Ohio



## "Wear-Ever" Woodruff Chuck And Keyway Cutter

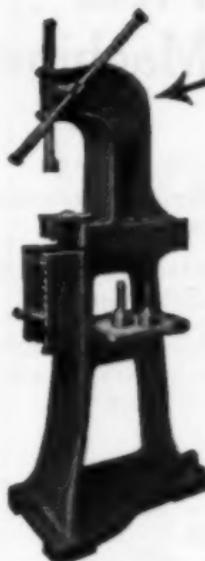
The "Wear-Ever" Woodruff Keyway Chuck insures a positive drive and true-running cutter. Eliminates making collet chucks. Fits all standard makes of milling machines, and is made in all tapers, such as Brown & Sharpe and Jarno tapers.

Let us supply you with cutters

No extra charge for the square



**SCULLY-JONES & COMPANY,** 555 Railway Exchange Bldg.,  
CHICAGO, ILL.



*See that  
strengthening  
rib!*

Nicholson Arbor Presses are built to endure the hardest sort of machine shop service. Frames of best semi-steel, racks, pinions and levers of heat-treated chrome-nickel steel—sturdy and compact—they last for years. Made in five sizes, and of course they're useful for many other sorts of work besides pressing out arbors.

## Nicholson Expanding Mandrels

Just nine of them to a set—and they instantly fit *any* hole, round or square, from  $\frac{1}{2}$ " to 7". If you're using solid mandrels now, you can figure for yourself the saving in time, labor, and storage space a set of these would effect in your shop.

*Details and prices of these and other  
Nicholson products on request.*

## W. H. Nicholson & Co.

117 Oregon St.,

Wilkes-Barre, Pa.



### *Agencies:*

BURTON, GRIFFITH & CO., Ltd.  
Ludgate Square, London, E. C.

MONTI & OSCURO  
Milano, Italy

BURTON FILS  
68 Rue des Marais,  
Paris, France

ANDREWS-GEORGE CO.  
16 Takegawa-Cho, Kiobashi-Ku  
Tokyo, Japan

# Combined Arbor Press And Straightening Machine

It's A  
"TOWSLEY"



Capacity, 48" between centers.

Straightens round bars up to 2½" diameter.

Straightens pipe, tubing, crankshafts, etc., up to 8" diameter.

This unique combination of two-machines-in-one permits us to manufacture it of high-grade material, carefully fitted and nicely finished like a machine tool, and still offer it at an attractive price for the many helpful things it will do—and do well.

Everyone knows how an Arbor Press saves time and money on innumerable jobs, and the "Towsley" is a good one. It is also exceptional as a Straightening Machine, for taking the bends and short kinks out of short stock before being turned. A Micrometer Indicator Head, mounted on a surface gauge, is furnished for work requiring extra accuracy.

*Its many economies will appeal to you. Better have the full description*

**John T. Towsley Mfg. Co.,** 1037 Woodrow St.,  
Cincinnati, Ohio

# WEAVER

## Forcing Presses



are saving time  
and money and  
improving the  
quality of work  
in thousands of

Garages  
Electric  
Shops  
Machine  
Shops  
and  
Factories

because of their wide range of application to both  
bulky and small work, due to their

Great Depth Adjustment  
Quick Release Feature  
and Enormous Leverage

enabling the operator to exert a pressure of 28 tons  
without assistance. For complete description and  
prices, write for catalogue.

**WEAVER MFG. CO.**

HARVARD PARK,

SPRINGFIELD, ILLINOIS

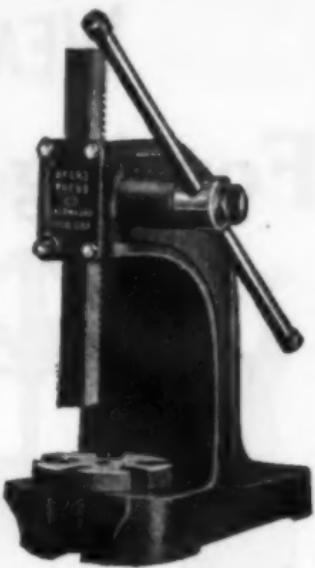
# Atlas Presses

pay for themselves  
quicker today than  
ever before.

Built in all sizes for all  
work which can be  
practically accom-  
plished by hand.

**Atlas Press Co.**

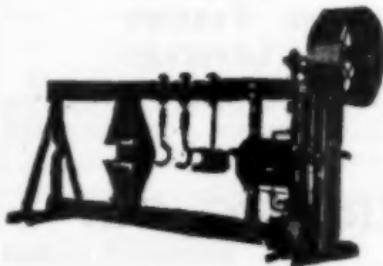
Kalamazoo, Mich., U. S. A.



## Lourie Hydraulic Presses

Are Known the World Over

We manufacture a complete  
line of standard hydraulic  
presses.



We also make  
special presses.

*Write for catalog*

**Lourie Mfg. Co.**  
Springfield, Ill.

# Pounding or Pressure! A Sledge Hammer or a Greenerd Arbor Press



From  
15 Lbs.  
to  
40 Tons  
Pressure

Why use the Sledge when a Greenerd will do the work so much easier, quicker, cheaper and in every way better, besides doing many things which cannot be done with a sledge hammer even in the hands of the most skilful?

In modern shops the sledge is not used for any work that can be accomplished with the steady, powerful pressure of the Greenerd Press. The economy of it is so great, the convenience of it so compelling, that it is universally regarded as indispensable.

If you don't know the Greenerd, get acquainted with it; when you do know it, you'll want one—or more.

**EDWIN E. BARTLETT, Nashua, N. H.**

The Word  
**"HARDINGE"**

Stamped on Screw Machine collets or  
draw-in chucks for tool room lathes

**Guarantees Accuracy**

Look for the marking

We can fill your single or quantity orders  
in Round, Square or Hexagon.

*When making inquiries refer to "Chuck Department"*

**Hardinge Brothers, Inc.**

1770 Bertheau Ave.

Ravenswood

Chicago, Ill.



**COLLETS**  
for  
**Lathes and Screw Machines**

Any Size

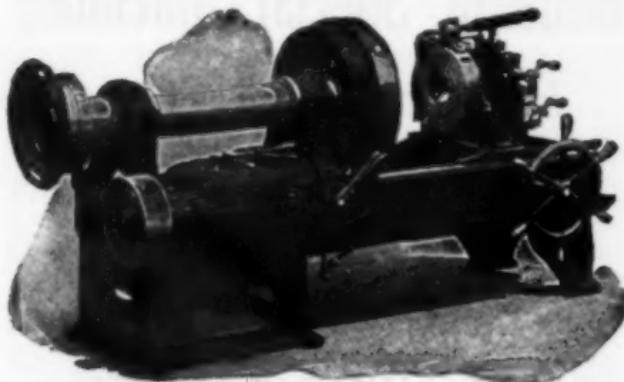
Any Type

Any Quantity

**Morrison Machine Products, Inc.**  
"Collet Specialists"  
Rochester, New York

# Features of Excellence

Keep Shop Costs Down to Bed-Rock



(No. 4 Peerless, Belt Drive. All Gears are Covered.)

THE ECONOMICAL service rendered by B. & K. Pipe Machines is easily understood when you know that—

- ¶ They are equipped with a gear box drive for obtaining the right threading speeds.
- ¶ All uncertainty or guess work in selecting the right speed for threading each size of pipe is positively eliminated.
- ¶ Dies can be changed without removing a screw.
- ¶ Die slot can be cleaned without removing the cover.
- ¶ A rotary oil pump supplies oil to dies and cutting-off tool.
- ¶ Pump is gear driven—no belt to soak up oil.
- ¶ All B. & Ks. have the Peerless adjusting mechanism.
- ¶ The larger machines have two gripping chucks.
- ¶ You have 17 styles and sizes to choose from.

*It will pay you to send your inquiry to us now*

AT EDWARDSVILLE, ILLINOIS

**Bignall & Keeler Machine Works**

We are prepared to estimate on  
**Building Special Machines**

from submitted plans and specifications—making special tools.  
We have the experience, men and "know how."

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**A. F. WAY CO., Inc.**  
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**Dies, Tools, Jigs, Gauges,  
Special Machinery, Ex-  
perimental Work and  
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*Send us your Specifications*

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**GEO. H. AINGE TOOL, DIE  
AND MACHINE WORKS**  
SPRINGFIELD, OHIO

# Our Pipe Benders Meet The Demand



Ever since their invention our hand Pipe Benders have had a steady sale and have given universal satisfaction.

Recently, we have made some improved attachments that permit of a wider range of work and open up a new field in the kind of bending the machine will accomplish.

If you do pipe bending you will find our machine an economical, simple and very efficient appliance in reducing costs and doing better work. For 2" and under.

*We have a Bulletin waiting for you. Send for it now.*

**Pedrick Tool & Machine Co.**

**3644 N. Lawrence St., Philadelphia, Pa.**  
Manufacturers of Cylinder Boring Bars, Portable Millers, Crank Pin Turning Machines, etc.

# Often Cuts Time In Two

Underwood's Portable Miller is Deservedly  
Popular in Railway and General Repair Shops

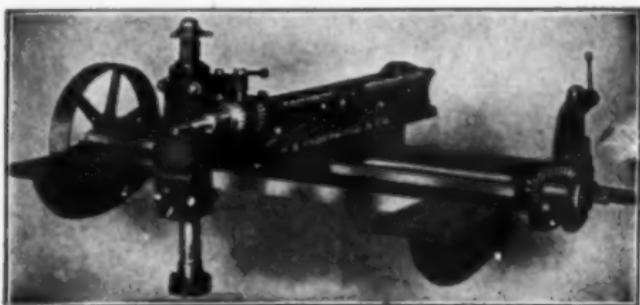


Figure 110

ITS RAPID, accurate, time-saving work satisfies everybody. It enables shops of every size to accomplish a wide range of rush repairs *in place*. The saving is obvious.

Figure 110 has power feed in both directions, and is usable in any position, horizontal, vertical or inclined. It faces a valve seat 22x40x7 in., or does other milling of similar dimensions. Operated by hand, small steam engine, air or electric motor. We can build to suit your special needs. Our line of Portable Tools includes:—

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners and reflex water glass grinders. We build special machines to order.

*Write for the Catalog—it pays to have one handy*

**H. B. Underwood Corporation**

1015-25 Hamilton St., Philadelphia, Pa.

## Second-Hand Machinery

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

**Write directly to those offering the machines for sale** for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool List advertisers.

---

### FOR SALE BY

**J. L. Lucas & Son, Inc.,** 3 Fox St., Bridgeport, Conn.  
METAL BAND SAW.

Napier band saw metal cutting machine ..... \$290.

---

### FOR SALE BY

**Peninsular Machinery Co., - 429 E. Jefferson Ave., Detroit, Mich.**  
GAP LATHE.

Gap lathe with sliding bed for garage work. Swings over shear 14": swings through gap 28". Takes between centers closed 3' 3", and 5' 10" with bed extended. Has double back gear, giving lots of pulling power. Cuts threads 4 to 64. Is complete with compound rest and countershaft. This is an ideal machine for a garage, as it is a small machine with a large range. It is in fine shape and the price is right. Write for further particulars.

---

### FOR SALE BY

**Tranter Manufacturing Co.,** 105 Water St., Pittsburgh, Pa.  
Boring mill, No. 2 Cleveland horiz. Drill, 20" Barnes, with equipment. Drill, 24" Hamilton, with equip. Drill presses, Avey, (2). Grinder, No. 3 B. & S. univ., with equipment. Grinder, Blount wet emery, & c. s. Grinder, Hamilton wet tool. Grinder, New Yankee drill. Grinder, cutter, small. Hack saw, No. 4 Robertson, with equipment.

Lathe, 16" Cincinnati, with equip. Lathe, 16" Hendey, with equip. Lathe, 18" Bradford, with equip. Lathe, engine, 18"x8". Lathe, speed, Wells, with equip. Miller, No. 2 B. & S., with equip. Miller, No. 3 B. & S. pl., with equip. Miller, No. 3 B. & S. vertical with equipment. Planer, 3"x8" Gray, with equipment. Radial drill, 4' Fosdick, with equip. Shaper, 16" Smith & Mills crank.

---

### FOR SALE BY

**Federal Machinery Sales Company,**  
8 N. Jefferson St., Chicago, Ill. 218 Sycamore St., Milwaukee, Wis.

#### Used Tools—Great Bargains

Boring mill, No. 3-A Universal horizontal. Drills, new No. 12 Natco multiple spindle, (2), each with 10 spindles. Gear generator, 14" Lees Bradner. Grinder, 6"x32" Norton plain. Grinder, 12"x24" Modern plain. Grinder, No. 24 Gardner vertical spindle, horizontal disc. Miller, No. 18 Rockford plain. Saw, No. 10 Racine. Tapper, No. 1 Garvin vertical automatic. Turret screw machine, No. 1 Southworth.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Walther Machinery Co.,**

**629 Main St., Cincinnati, Ohio**

Drill press, D-3 Colburn heavy duty, used.

Drill, 8-spindle multiple, No. 4 Morse, used.

Lathe, 12" x 6' Willard d. b. g., s. q. c., c. d., used.

Millers, Whitney hand type, (3); motor driven, d. c., 220 v., (2) used.

Turret machines, Steinle, without side carriage, rebuilt, (9).

### FOR SALE BY

**The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.**

#### ENGINE LATHES.

13" x 5' South Bend, c. r.

14" x 6' Von Wyck, c. r.

16" x 8' Lodge & Shipley, compound rest, patent head.

16" x 6' Hamilton

#### TURRET LATHES AND SCREW MACHINES.

1" Millholland, plain head.

2" x 10" Millholland, g. f. h., p. f.

14" Garvin, g. f. h., p. f.

14" Lodge & Davis, plain head.

24" Davis turret boring and chucking lathe, with forming rest.

22" Lodge & Shipley heavy duty turret boring lathe.

18" Acme screw mchne., p. f. to tur., (3).

26" Gisholt heavy duty turret lathe.

#### DRILLING MACHINES.

No. 1 Burke, bench, (2).

Single spdl. upright sensitive, (2).

24" Baker, hvy. duty, sta. head.

#### MILLING MACHINES.

Bench miller on column, with c. s.

No. 1 U. S. hand, 3-st. cone., c. s., (3)

No. 15 Garvin plain, b. g.

No. 22 Garyn, vertical spindle.

No. 1 Cincinnati plain.

#### GRINDERS.

No. 10 Cochrane-Bly auto. bench saw filing machine.

12" x 66" No. 4 Landis univ., complete.

No. 1 Brown & Sharpe, univ.

Type "DE" Hisey Wolf internal.

#### HAMMERS AND RIVETERS.

No. 3 High speed riveting hammer.

Coffman post pwr. dr. hammer 25 lbs.

Cady belt drop hammer, 100 lbs.

#### METAL CUTTING TOOLS & SQUARING SHEARS.

Excelsior power hack saw.

12" Burke metal cold saw.

Higley cold saw.

No. 1 Racine H. S. Hack Saw.

No. 15" Higley cold saw.

#### PUNCH PRESSES.

#### GEAR CUTTERS.

26" No. 3 Brown & Sharpe auto., (2).

60" Eberhardt, spur.

#### MISCELLANEOUS.

Boring mchne., 23" swing, Star horiz.

Boring mill, 34" Colburn.

Brake, 36" P. S. & W. cornice brake,

20 gauge capacity.

Broaching mchne., No. 2 Lapointe.

Crane and hoist, Canton No. 3.

Planers, 22" x 22" x 5" Putnam, 1 hd., (3).

Polishing lathes, City Machine Co.

Press, No. 65-A Consol., s. s., grd.

Press, D-301 Ferracute redrawing and trimming.

Radial drill, 3" Gang, speed box.

Tapper, 8" Burke, bench.

Tappers, 8" Rickert-S. horiz., (2).

## SECOND-HAND MACHINERY

### FOR SALE BY

Cyril J. Bath & Co.,

1603 St. Clair Ave., N. E., Cleveland, O.

Good Tools—Low Prices

#### BAR STOCK MACHINES AND TURRET LATHES.

2" & 3" P. & W. turret lathes, power cross and long. feed.

14" Warner & Swasey turret lathe.

#### HOLT AND NUT MACHINERY.

3" Landis bolt cutter, late model.

1" Acme, style B.

#### BORING MILLS.

No. 32 Giddings & Lewis horizontal.

48" Gisholt double swivel head, single pulley.

51" Niles, swivel and turret heads, gear drive.

72" Sellers, 2 swivel heads.

#### DRILLING MACHINES.

2' American radial, plain.

5' Fodick radial, plain.

6' Dresses, full universal.

4' American, cone drive.

4' Western, plain, motor drive.

4' Morris plain, single pulley.

9' Cleveland wall radial.

28" Sibley, sliding head.

26" Barnes, tapping attachment.

#### GRINDERS.

No. 3 Cincinnati 12x48 universal.

14x50 Norton plain.

18" Bryant internal.

12" Bridgeport, a. c., motor drive.

New Yankee drill, motor drive.

#### LATHES.

24"x14' Boye & E., cone dr., d. b. g.

14"x8' Champion, taper attachment,

9. c. g., d. b. g.

16"x8' Bradford, q. c. g.

32"x20' New Haven, b. g., cone drive, solid spindle.

34"x18' Putnam, cone dr., solid spdl.

42"x28' Pittsburgh heavy duty, triple geared, motor drive.

42"x20' Schumacher & Boye, q. c. g.

42"x32' New Haven, d. c. motor dr. LeBlond universal crankshaft lathe.

#### MILLING MACHINES

No. 3 LeBlond heavy duty universal.

No. 3 Brown & Sharpe plain.

No. 3-B heavy Brown & S. plain.

No. 2 Cincinnati pl., cone dr., gr. fd.

No. 2 Brown & Sharpe vertical.

No. 12 Brown & Sharpe plain.

Type A Briggs, Lincoln.

No. 7-H Becker, Lincoln type.

#### PLANERS AND SHAPERS.

24"x24"x 6' Liberty.

30"x30"x 8' Niles-B.-P., box table.

24"x24"x 6' Gray.

24"x24"x 6' Pease.

48"x48"x20' Patch, 4 heads, reversing motor drive.

60"x60"x20' Sellers, spiral dr., 4 hds.

24" Gould & Eberhardt shaper.

#### PRESSES.

D-301 Ferracut, 4" stroke, 22" between housings.

200-ton Southwark hydraulic flanging press, 5' gap, accumulator, Worthington vert. triplex pump, 24 h. p. Westinghouse motor, for flanging boiler hds.

#### PUNCHES AND PLATE WORKING TOOLS.

16' Hilles & Jones 1" plate bending rolls.

Henry Peis armor plate beam and angle shears.

12" Southwark horizontal punch, 1 $\frac{1}{2}$  thru 1 $\frac{1}{2}$ .

84" No. 2 Long & Allstatter single end shear, 4" plate.

84" No. A Long & Allstatter single end punch, 1 $\frac{1}{2}$  thru 1 $\frac{1}{2}$ .

No. 4-B Quickwork rotary shear, 60" throat, 4" plate.

Globe double end punch and shear, 30" gap, 1" thru 1".

42" throat single end plate shear.

American Ship single end punch and shear, 38" throat, 1" thru 1".

#### RIVETING MACHINES.

10' Morgan horiz. bull riveter, 14" plunger, 30-ton hyd. crane, Dean trip. pump.

#### RIVET MAKING MACHINE.

Acme size 1/4" rivet and track bolt machine, large equipment.

#### SLOTTERS.

16" Betts, cone drive.

18" Newton, cone drive.

#### MISCELLANEOUS.

Cold saw, No. 11 $\frac{1}{2}$  Higley.

Motor, 10 h. p. Card, d. c.

Crankshaft, 18", for 77 $\frac{1}{2}$  Bissell press.

Motor, 2 h. p. Cleveland, a. c.

Keyseater, No. 4 Baker Bros.

Thread roller, No. 4 Manville.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Sebastian Lathe Company,**

**Cincinnati, Ohio**

#### LATHES.

All cone head. Used in our own shop. Priced low to move quickly. Cash required with order.	LATHES.	
15" x 8"	8 325.	14" x 8" Reed..... \$ 150.
15" x 6" Sebastian.....	325.	14" x 6" LeBlond..... 175.
15" x 8" Sebastian.....	300.	

### FOR SALE BY

**Herman L. Winterer,**

**943-53 N. Front St., Philadelphia, Pa.**

#### LATHES.

43" x 17' 4" Bement-Miles.  
 42" x 25' 6" Putnam.  
 42" x 26' Johnson d. b. g., t. a.  
 42" x 16' Niles.  
 37" x 14' Johnson d. b. g., q. c. f., t. a.  
 32" x 12' Pittsburgh, heavy duty, q. c. g.  
 26" x 16' 6" American, q. c. g.  
 27" x 12' Bullard.  
 26" x 11' Wickes, q. c. g.  
 28" x 10' Niles, q. c. g.  
 25" x 14' Hendey, q. c. g., taper attachment, oil pan, (2).

#### TURRET LATHES.

43" x 6' Lodge & Shipley chucking.  
 28" Pond, triangle.  
 3x36" Pratt & Whitney hollow hex.  
 19" x 7' Fay & Scott.

#### DRILL PRESSES.

5' Bickford radial.  
 5' Prentice radial.  
 42" Economy radial.  
 40" Barnes horizontal radials, (2).  
 36" Bickford radial, circular base, motor driven.  
 18" 4-spindle 2-housing, Foote-Burt.  
 14" 6-spindle Allen sensitive.

#### MILLING MACHINES.

38" x 6' Ingersoll horizontal slab.  
 No. 5 Cincinnati, table 9x50".  
 No. 15 Garvin, table 12x42".  
 No. 3 Becker Brainard, table 12x40".  
 No. 3 Cincinnati, table 12x47".

#### PLANERS AND SHAPERS.

45" x 48" x 16' Pond planer, 3 heads.  
 26" x 26" x 6' Hendey planer.  
 48" Morton draw-cut shaper.  
 33" Pedrick & Ayer, open side.

#### MISCELLANEOUS.

Bolt machine, 4" National.  
 Boring mill, 100" Sellers, vert., dbl. hd.  
 Boring mill, car wheel, 60" Newton.  
 Boring, drilling and milling machine, 17" Bement Niles horizontal.  
 Grinder, 13" x 5" Landis universal.  
 Grinder, disc, No. 17 Besly.  
 Grinder, disc, No. 1 Besly.  
 Hammers, 60 lb. Bellefonte upright, (3).  
 Keyseaters, 18" stroke Morton, (2).

Large assortment of General Machinery. Send for Complete List.

## SECOND-HAND MACHINERY

### FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St.,

St. Louis, Mo.

#### LATHES.

13" x 6' Lancaster, c. r., h. s., new.  
14" x 6' Walcott, q.c.g., d.b.g.; new.  
16" x 6' Reed-Prentice.  
16" x 8' Walcott, q.c.g., d.b.g., new.  
16" x 8' Monarch, d. b. g., q. c. g.  
18" x 8' Monarch, d. b. g., q. c. g.  
20" x 8' Lodge & Shipley; used.  
20" x 8' Williams turning lathes.  
20" x 10' Walcott, q. c. g.; d. b. g.; new.

#### TURRET

Foster No. 3, plain head, (7).  
Wood Tilted Turret, 14" cap., (2).  
Omar, 16x6, b. g., p. f. with equip.  
Gisholt, 16" Type A., b. g., (2).

#### DRILLING

No. 1 Burke, bench, chucks, new.  
Henry & Wright single spindle, h. s., 4" cap.  
4" Leland Gifford, high speed.  
4 spindle Garvin; used.  
4 spindle Allen, high speed cap. 29/32.  
4 spindle Avey, high spd.; used.  
5 spindle Allen, high speed cap. 29/32.

#### MILLING

No. 2 American Lincoln, b. g., new.  
No. 1 U. S. hand, vise and arbor.  
No. 2 P. & W., Lincoln type, used.  
No. 1 B Fox hor., h. & p. f., new.  
24" Oesterlein, universal.  
Becker No. 7H Lincoln; used.  
Hendey No. 4 Lincoln type, q. c. g.  
Foster thread miller.

#### PRESSES

Nos. 1, 2, 3, 4 Loshbough-Jordan, o. b. i., new.  
No. 1 Greenerd, arbor, used, (9).

#### SAWS

Nos. 1 & 2 Marvel, draw cut, new.  
No. 1 Racine, 6x6 high speed, new.

#### GRINDERS

Nos. 1, 2 & 3 Western, d. e., new.  
Nos. 1, 2 & 3 St. Louis, d. e., new.  
No. 20 Safety E. W. Co., elec. (4).  
No. 1 Grand Rapids universal cutter and tool; new.  
Wood No. 2 Univ. cutter & tool; used.  
Oesterlein No. 2, cutter & tool.

#### HAMMERS

25 lb. Rochester helve, used.  
Foot hammer, Standish.  
800 lb. Lane, dbl. fr., st. forging, used.

#### MISCELLANEOUS

Accumulator, Metalwood, with wts.  
Blower, No. 8 American.  
Bolt threader, Greenfield 4" to 2".  
Brake, 8' Chicago, steel; new.  
Cut-off machines, Modern.  
Dicing-out machine, 9' Hawkins.  
Furnace, melting, Steele-Harvey.  
Hoists, air, 4x48' Northern.  
Lathe chucks, all sizes to 16" diam.  
Motors, 5 and 10 h. p. G. E., 220 v., 3 ph., 60 cy.

20" x 12' Le Blond; used.

24" x 10' Fay & Scott, h. s., used.

24" x 12' Putnam.

26" x 8' Walcott plain turning.

26" x 12' Walcott, q.c.g., d.b.g., new.

26" x 12' Wickes, heavy duty, quick change gear, double bk. gear, with taper attachment, new.

26" x 12' Draper, triple geared.

#### LATHES.

Wysong & Miles, 24" b. g., p. f., air chuck, (2).

16" x 7' Fulton, b. g., p. f., (4).

14" x 6' S. & K. plain head.

#### MACHINES.

6 spindle Allen, high speed cap. 29/32.

18" Prentice, p. f., stat. table, used.

24" Milwaukee, sliding head, back gear, power feed.

20" Champion, s. b., b. g. & p. f., new.

20" Champion, s. b., w. & l., new.

26" Barnes, sl. hd., b. g., p. f.; used.

30" Gould & E., sl. hd., b. g., p. f.

#### MACHINES.

No. 3 Garvin, hand, used.

No. 3 B Owen pl. hor., with vertical attachment & dividing head, used.  
Hendey, Lincoln type, b. g. with q. c. g. to feed, tables 11x30, (6).

No. 6 Whitney, hand; used.

No. 32 Fox, hand & power fd., used.

No. 42 Becker-Brainard, pl. pr. fd.

#### PRESSES.

No. 2 Greenerd, arbor, used, (6).

Nos. 2 & 3 Geier, arbor; new.

Perfection, 30 ton, arbor; new.

#### SAWS.

Racine hi-speed, 3 sp., 8x8" used.  
Williamson, metal, used.

#### GRINDERS

G. R. B-2-T drill grinder.

U. S., electric, 110 v., d. c., bench.

Essley, cylindrical.

No. 1 American, surface; new.

No. 2 American, surface, new.

14" Bealy wet ring grinder.

#### HAMMERS.

No. 50 Star trip hammer, new.

1200 lb. Chambersburg double frame, steam forging, used.

#### MISCELLANEOUS.

Pipe cutter, B. & K., 4" cap.

Pipe mch., No. 76 Forbes, 3", used.

Pipe machine, 3" Borden, hand.

Profilers, No. 12 P. & W., 2 spdl.

Riveters, Grant and Shuster; used.

Riveter, air, P. & A. swinging.

Shaper, 16" Whipp, sgl. gr.; new.

Shaper, 16" Gould & Eberhardt; used.

Stake punch & riveter, No. 3 Hilles & Jones, 5" thr., wt. 16000 lbs., used.

## SECOND-HAND MACHINERY

### FOR SALE BY

**J. L. Lucas & Son, Inc.,**

**3 Fox St., Bridgeport, Conn.**

#### PRESSURE BLOWER.

Root pressure blower,  $1\frac{1}{2}$ " outlet, suitable for small furnace; 27 cu. ft. per minute; nice condition; C.O.D. \$20.

### FOR SALE BY

**Atlantic Manufacturing Co.,**

**Wilmington, Del.**

Belting: Large quantity used leather belting which has been made over; A-1 condition; all the principal sizes.

Belting, surplus stock of new leather, rubber and canvas.

Pulleys, steel and wood.

Special prices. Send us your inquiries.

### FOR SALE BY

**A. D. White Machinery Co.,**

**108-114 N. Jefferson St., Chicago**

#### ENGINE LATHES.

14"x 6' Smurr & Kamen.

20"x 8' Reed, motor driven.

18"x 7' Chard, d. b. g., p. c.

22"x 10' Davis, d. b. g., q. c.

18"x 9' Bell, d. b. g., p. c.

32"x 10' Pond, s. b. g., p. c.

20"x 8' Hamilton, d. b. g., s. q. c.

34"x 10' Putnam, s. b. g., p. c.

20"x 8' Lodge & Shipley, grd. hd.

38"x 14' Fifield, s. b. g., p. c.

20"x 8' Reed, s. b. g., p. c.

#### MILLING MACHINES.

No. 0 Rockford, plain.

Model AB Becker, vert., motor dr.

No. 25 Becker, horizontal.

Type "A" Briggs (2).

No. 1 Newton slab.

#### DRILL PRESSES.

20" Mechanics, friction.

2 spindle Guarantee, h.s., b. b.

26" Barnes, sliding head.

4 spindle Reed sensitive,  $\frac{1}{2}$ " cap.

28" Barnes, sliding head.

24" No. 24 Foote-Burt heavy duty.

36" Aurora, sliding head.

2 spindle 24" Barnes, all grd. gang.

#### PUNCH PRESSES.

No. 1 Consolidated, grd., (2).

19" throat geared punch.

No. 0 American Can.

New Swaine o. b. i. presses Nos. 27,

No. 8 & No. 11 Bliss auto. button

29, 31, 33, 35 and 37.

#### PRESSES.

#### TURRET LATHES AND SCREW MACHINES.

No. 3 Foster, plain head.

No. 3 Stecher, hand, (4).

20"x 5' Bridgeport, (2).

16"x 5' Dreses Fox.

20"x 8' Fay & Scott universal.

18"x 6' American Fox.

22"x 5' Reed.

18"x 6' Springfield Fox.

21" and 24" Gisholts.

7/16" Cleveland, ratchet feed.

3x36" Jones & Lamson.

1" Cleveland, semi-auto.

11"x 10" Milholland.

1" Cleveland, friction.

11" Biggs (2).

1" Cleveland, jigger.

No. 1 Garvin, hand, (4).

1" Hartford, (2).

No. 1 B. & S. auto 1" (2).

1" Cleveland, jigger.

#### BOLT CUTTERS AND PIPE MACHINES.

11" Acme, double head.

4" Saunders (2).

3" Acme single head, (2).

8" Eaton, Cole & Burnham.

4" Acme single head.

#### MISCELLANEOUS.

Blower, No. 7 Sturtevant, high press.

Grinder, Springfield, 2-wheel wet.

Boring mch., 24" bar, Binsse horiz.

Grinder, Leland & F., wet.

Gang slitter, takes 21" sheets.

Planer, 30"x30"x10' Pond. 1 head.

Gang slitter, takes 29" sheet.

Profiler, 2 spindle Putnam.

Gas engine, 35 h. p. Columbus.

Riveter,  $\frac{1}{2}$ " Shuster.

Gas engine, 55 h. p. Bruce-McBeth.

Saw, No. 54 Nutter-Barnes.

Grinders, No. 2 Woods tool & cutter.

Screw slotter, Garvin hor. 3/16 to  $\frac{1}{2}$ ".

Grinder, No. 2 Oesterlein tool & cut.

Tapper, No. 2 Garvin, auto.

Grinder, 10x30 Landis plain.

## SECOND-HAND MACHINERY

### FOR SALE BY

Russell Machine Co., - 28th St. & A. V. R. R., Pittsburgh, Pa.

#### LATHES,

48" x 32' N. B. P., triple geared.  
 48" x 28' Niles, c. r.  
 48" x 26' Pond, triple geared.  
 36" x 18' 6" Niles, c. r.  
 28" x 12' Boye & Emmes, q. c. g., d. b. g.  
 26" x 12' Pittsburgh, dbl. b. g.  
 26" x 20' 6" Putnam, b. g., c. r.  
 26" x 10' 6" Walcott, q. c. g.  
 24" x 16' 6" Johnson lathe.  
 24" x 12' Ames, b. g., c. r.  
 18" x 8' Mueller, q. c. g., new.  
 19" x 10' LeBlond, motor drive.

18" x 8' Sidney, q. c. g., d. b. g.  
 18" x 8' Rahn-Mayer-Carpenter.  
 18" x 6' Columbus, q. c. g., new.  
 15" x 8' Schellenbach, d. b. g., h. s.  
 14" x 8' Hendey, q. c. g.  
 19" x 56" Star, foot power.  
 24" x 8' Gisholt turret, 44" h. s.  
 24" x 8' Gisholt tur., 64" h. s., m. d.  
 15" x 8' American brass finishers.  
 14" x 5' American speed lathe.  
 13" x 5' Blount speed lathe.  
 18" x 7 1/2" Wood lathe.

#### PLANERS AND SHAPERS.

20" x 20" x 51" planer, 1 hd.  
 24" x 24" x 8" Chandler planer, 1 head.  
 48" x 48" x 22" Pond planer, 4 heads.  
 72" x 56" x 12" Betts planer, 2 heads.

16" American shaper, b. g., m. d.  
 16" Gould & Eberhardt, b. g.  
 24" Cincinnati b. g. shaper, m. d.  
 24" Walcott geared shaper.

#### DRILLS AND BORING MILLS.

20" Champion, new, pl. w. & l.  
 20" Silver, new, plain w. & l.  
 24" Aurora upright, b. g.  
 36" Snyder b. g. drill.  
 40" New Haven, b. g. drill.  
 3", 4" & 6" Prentice radial drills.  
 No. 3 Phoenix air drill.  
 No. 1 Myers 10" sensitive drills.

10" Dwight-Slate sensitive, floor.  
 14" U. S. sensitive drill.  
 30" Warner-Swasey boring mill.  
 36" Bridgeport boring mill.  
 42" Bullard boring mill, 2 heads.  
 50" Bullard boring mill, 2 heads.  
 60" Niles boring mill, 2 heads.  
 90" Niles boring mill, 2 heads.

#### PUNCHES, SHEARS,

50" throat Reade sgl. end punch and shear; massive construction.  
 No. 45 Buffalo punch, 1 1/2".  
 No. 4 Doeiger & Kirsten alligator shear, cap. 44" round soft steel.  
 Garrison m. d. alligator shear, 18" knife, cap. 3" square, 36000 lbs.  
 Lewis m. d. alligator shear, 24" knife, cap. 3 1/2" square, weight 50000 lbs.  
 Morgan plate shear, 96" x 1" thick.  
 Garrison plate shear, cap. 8" x 81", m. d.

#### PRESSES AND ROLLS.

Mesta plate shear, cap. 4" x 156".  
 Knight s. e. punch, 8" thr., 3" x 3".  
 No. 56 dbl. housing knuckle press.  
 Stiles Nos. 3 & 23 inc. presses.  
 Hiss No. 18 o. b. i. power press.  
 Straight-side trimming press, 6" str.  
 Straight-side punch press, 4" str.  
 Bliss No. 704 s. s., d. g. press, 11" str.  
 Corry Mch. Co. press, 12" stroke.  
 No. 116-A Niagara press, m. d.

#### MILLING MACHINES.

No. 3 LeBlond plain.

No. 12 Garvin plain, 18" x 6" x 15".

#### MISCELLANEOUS.

Air compressor, No. 0 Au-To 3" x 4".  
 Air compressor, 8" x 8" hor. b. d.  
 Band saw, Greaves-Klusman 36".  
 Band saw, Kane-Roach 32".  
 Bender, Wallace No. 11 angle, hd. pr.  
 Blower, Root No. 3 Acme, hand.  
 Blower, Sturtevant, No. 4, volume.  
 Blowers, Buffalo Nos. 5 and 8.  
 Boiler, 24" x 8" vertical.  
 Bolt cutter, Landis 18".  
 Brazing table, all iron, 17" x 29" x 31".  
 Bulldozer, No. 2 Williams-White.  
 Chain belt, 16" x 8" x 1 1/2" p. and gear.  
 Cold saw, No. 17 Higley, 20" saw.  
 Cold saw, Wagner, size 18 type 3.  
 Cold saw, Glem. 22" diam. 6" cap.  
 Crane, 10' I-beam, 12' 3" span.  
 Crimping machine for short work.  
 Fan, 48" ventilating.  
 Forges, Nos. 41-43 Champion new.  
 Grinder, Greenfield cutter & tool.

Grinder, Diamond No. 3 wet tool.  
 Grinders, Plymouth Nos. 13, 14, 17.  
 Grinder, Barnes 20" wet tool.  
 Hammers, 100 & 200 lb. belt power.  
 Hammers, 2500 lb. Chambersburg, double leg steam forging.  
 Heading, upsetting and forging machine, 3" National.  
 Hoist, contractor's steam, with 8 h. p. boiler & 8 h. p. engine.  
 Index centers, 12" B. & S. univ.  
 Metal lockers, 10 sections.  
 Polishing stand, Diamond No. 2.  
 Polishing stand, d. end, 42" x 1" arbor.  
 Polishing stand, Cuyahoga dbl. end.  
 Ripaw, table, 49" x 30".  
 Saw, North Wales, hach, 5" x 5".  
 Slotted, Niles 15".  
 Straightening rolls, 84 x 10 Cleveland.  
 Trimmer, American No. 2, univ. wood.  
 Wiring machines, Pexto, bench.

## SECOND-HAND MACHINERY.

### FOR SALE BY

**Reliance Machinery Sales Co.,  
Brighton Road At Pennsylvania Ave., Pittsburgh, Pa.**

Bolt cutter, Reliance, 14".  
Boring mill, 24" Buiard Rapid Production.  
Boring mill, 30" Colburn, turret hd.  
Boring mill, 30" Niles, 2 swivel hds.  
Drill, 3/4" Prentice radial, t. a.  
Gear cutter, 15" G. & E. comb.  
Lathe, 14" x 6" Sidney, quick change.  
Lathe, 18" x 8" Lodge & Shipley, q.c.g.

Lathe, 26" x 10" x 6" Walcott, q. c. g.  
Lathes, 24" x 26" Greenlee, cross feed.  
Miller, 30" x 30" x 9" Ingersoll, 2 hds.  
Pipe machine, Jarecki, 1" to 4".  
Pipe machine, Cox, 2" to 6".  
Pipe machine, Merrill, 24" to 12".  
Press, No. 88 Niagara cam drawing.  
Riveter, 4" Shuster.  
Shaper, 24" Stockbridge, p. d. f.

### FOR SALE BY

**The Enterprise Machinery Co.,**

Air hoist, Ing. Rand 8-ton (new \$525) ..... \$ 195.  
Boring mill, 48" vert. 10000 lb. 700.  
Boring mill, hor. 3" bar, 95%. 1650.  
Boring mill, 36" Niles, 2 hds. 1750.  
Drill, heavy, Baker ..... 375.  
Drill, 24" Barnes, b.g., p.f., hvy. 180.  
Grinder, Landis No. 1 ..... 550.  
Grinder, Bath No. 2 cylindrical 700.  
Grinder, Landis, 14x32 univ. 1200.  
Keyseater, Baker No. 00 ..... 150.  
Lathe, LeBlond 19x6 q.c., d.b.g. 375.  
Lathe, 26x14 Walcott, q. c. d. b. g., crank. 1300.  
Lathe, 28x14 Rahn Carpenter heavy duty, fine condition. 1100.

**28 S. Clinton St., Chicago**

Lathe, 49x18 McFarland, b. g. \$1100.  
Miller, No. 4 B. & S., q. c., pl. 1500.  
Miller, No. 1 Kempsmith, q.c., pl. 475.  
Punch press, No. 3 Walsh ..... 315.  
Punch press, Bliss No. 734, b. g., 2300.  
Punch pr., Consol. No. 33 arch. 650.  
Punch press, bench, auto. roller fd., our ad elsewhere this issue 160.  
Punch, sh. & rod c. 1" x 1" \$250—350.  
Radial, 42", Prentiss, sgl. pul. 90% 800.  
Radial, Am. 4" high sp., 90% ..... 850.  
Roll, 20" Wickes, 11/16 drop end 4200.  
Screw mch., Gridley 1 3/4, (5) 2500.  
Shear, Lenox 4", 90% new ..... 375.  
Turret lathe, Gisholt 24", 90% ..... 640.  
500 other tools. Write us.

### FOR SALE BY

**W. P. Little Co.,**

13" x 6' Prentiss, c. r., t. a.  
14" x 6' Blairstell, c. r.  
14" x 6' LeBlond, c. r.  
14" x 6' plain rest.  
16" x 6' LeBlond gap, c. r.

20" Silver, s. b. w. & l., (2).  
20" Hoefer, b. g., p. f.  
20" Prentice, w. & l.

**1616 Columbus Road, Cleveland, Ohio**

#### LATHES.

20" x 10' Rahn & Meyer, c. r.  
20" x 10' Lodge & Davis, p. r.  
24" x 15' New Haven, c. r. & t. a.  
26" x 9' Bridgeford, q. c. g., (3).  
30" x 10' Plain turning.

#### DRILL PRESSES.

24" Aurora, b. g., p. f., s. h.  
28" Aurora, b. g., p. f., s. h.  
24" Heavy duty.

#### MILLING MACHINES.

No. 4 Hendey Lincoln.  
Reed, Lincoln pattern, (2).

#### GRINDERS.

No. 23 B. & S. cylinder grinder.  
No. 3 B. & S. cutter & reamer.

#### PUNCH PRESSES.

18" throat Excelsior, 1" cap.  
No. 19 Bliss horizontal dial.

#### MISCELLANEOUS.

Screw machine No. 4 B. & O., hand.  
Slotter, 8".  
Spline miller, 4" P. & W.  
Thread miller, 6" x 48" P. & W.  
Turret, 16" W. & S.  
We buy Used Machinery! What have you to sell?

U. S. hand mills, (4).  
No. 1 Brown & Sharpe universal.

6" x 32" Norton plain.  
Washburn drill grinder.

No. 4 Toledo, o. b. l.  
No. 1 Toledo, o. b. l.

Band saw, 36".  
Broach, No. 3-A LaPointe.  
Furnace, No. 3 Frankfort.  
Riveter, 4" Shuster.  
Screw machine No. 1 Garvin, hand.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Niles-Bement-Pond Company.** . . . . . **111 Broadway, New York**  
Located at our various factories and stores.

#### LATHES.

22" x 8' Niles, c. r.  
24" x 10' Whitcomb, q. c.  
26" x 10' Pond, q. c., 220 v., d. c. motor.  
26" x 26' & 28" x 18' Niles, c. r.  
28" x 12' & 32" x 12' Pond, c. r.

36" x 20' Pond, 220 v., d. c. motor dr.  
42" x 20' Niles, c. r.  
48" x 30' Niles, c. r.  
50" x 17' F. B. Miles.  
54" x 28' American, t. g., 220 v., d. c. mtr.

#### TURRET LATHES.

No. 6 A P. & J. auto., 220 v., mtr. d. c.  
1" x 10" P. & W., turret lathe.  
2" x 24" Jones & Lamson, cone head.  
2" x 26" Pratt & Whitney turret lathe.  
2 1/2" x 26" Pratt & Whitney, turn table.

28" size J. Gisholt, 3 1/2" spindle.  
34" size I Gisholt, 220 v., mo. dr., d. c.  
32" Conradson turret.  
34" size K Gisholt.

#### PLANERS.

30" x 30" x 6' Pond, 2 heads.  
30" x 30" x 12' Pond, 2 heads, 220 v., d. c., reversing motor drive.  
30" x 30" x 10' Pond, 2 heads.  
36" x 36" x 12' Gray, 2 heads.  
38" x 38" x 10' Niles, 2 heads.  
38" x 38" x 12' Niles, 4 heads.  
36" x 36" x 16' Pond heavy, 2 heads, 220 v., d. c., reversing motor drive.  
38" x 38" x 16' Niles, 3 heads.

36" x 36" x 25' Bement, 4 heads.  
42" x 42" x 14' Pond, 3 heads.  
48" x 48" x 20' Bement, 4 heads.  
60" x 60" x 14' Niles, 4 heads.  
60" x 60" x 20' Niles, 3 heads.  
60" x 60" x 24' Niles, 4 heads.  
72" x 72" x 12' Bement, 4 heads.  
72" x 72" x 20' Ridgway, 4 heads, 220 v., reversing, motor d. c.  
10' x 10' x 36' Bets. 4 hds., 220 v., d. c. mtr.

#### MILLERS AND GEAR CUTTERS.

No. 5 B. & S. plain cone type.  
No. 5 B. & S. vertical, cone type.  
No. 3 36" x 8" B. & S. gear cutter.  
No. 4 36" x 9" B. & S. gear cutter.

No. 6 60" x 12" B. & S. gear cutter.  
15" Gleason bevel gear generator.  
6" x 48" P. & W. thread miller o. s.  
6" x 60" P. & W. thread miller o. s.

#### DRILLING MACHINES.

40" Aurora, tap, attach.  
3" Grant radial drill and boring mch.  
3" Dresses plain radial.  
4" Bickford plain radial.  
4" Niles full univ., old style, motor.

5' Ridgway, 220 v., d. c. motor.  
6' Niles full univ., 220 v., d. c., m. d.  
6' Niles semi-universal, old style.  
6' Pond radial, 220 v., d. c. motor.  
No. 13 P. & W. multiple 12 spindles.

#### GRINDERS.

12" x 36" Cincinnati, universal.  
No. 8 Higley saw grinder.

8" x 30" Fraser universal.  
10" x 22" Norton plain.

#### BORING MACHINES.

No. 1 Bement horiz., 28" spdl., 5'tbl.  
No. 2 Bement horiz., 30" spdl., 6'tbl.  
No. 2 1/2 Niles horiz., 4" spdl., 6'tbl.  
No. 3 Bement horiz., 4" spdl., 9'tbl.  
No. 3 Bement horiz., 48" spdl., 9'tbl.  
No. 4 Bement horiz., 48" spdl., 10'tbl.  
42" Niles b. & t. mill.

60" Bement bor. & t. mill.  
10' Niles b. & t. mill, 220 v., d. c. mtr.  
4" spndl Niles floor borer.  
5" spndl Niles floor borer.  
6" spndl Bement floor boring & drill.  
6 1/2" spndl Niles floor borer.

#### MISCELLANEOUS.

Air compressor, type 10, Ingersoll-Rand, steam driven, capacity 535'.  
Air compressor, Ingersoll-R. duplex, mtr. dr. 35 h. p. d. c. mtr., cap. 215'.  
Air compressor, Gardner class D, duplex, steam, capacity 837'.  
Blower, No. 10 Sturtevant.  
Blower, No. 70 Buffalo.  
Crane, 3 ton, Niles, 14' 2" span.  
Crane, 20 ton, 48' span Sellers, 220 volt, motor direct current.  
Engine, 125 h. p., Phila. cross comp.  
Corliss air compressor.  
Engine, 150 h. p. Phila. Corliss.  
Engine, 200 h. p. Corliss, twin.

Engine, gen. set, d. c., 220 v., 100 k.w.  
Graduating machine, Le Blond.  
Hammer, 750 lbs., sgl. frame, Sellers.  
Hot blast apparatus, Sturtevant, 120' housed steam fan engine dr., 10 section corrugated base heater 8' 6" x 5' 6" x 6' high, 440' per section.  
Motor, 40 h. p. G. E., type R. C., 1200 r. p. m., 220 v., d. c.  
Pump, 500 gal. Gordon duplex, steam.  
Saw, 8" rounds, Higley.  
Screw shaver, No. 2 P. & W.  
Separator, American No. 1, oil.  
Slotted, 6" Bement.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### The Canton Machine Shop Company,

Canton, Ohio

Lathe, 13" x 8' Pratt & Whitney, t. a.  
 Lathe, 14" x 10' Bradford.  
 Lathe, 16" x 8' South Bend.  
 Lathe, 14" x 8' Carroll-Jamieson, t. a.  
 Lathe, 24" x 10' New Haven.  
 Lathe, 12" x 8' speed lathe, collets  
 and compound rest.  
 Metal shingle edging machines, (3).  
 Miller, No. 2 LeBlond universal.  
 Miller, Brainerd.  
 Motor, electric, 5 h. p., d. c.

Paper cutting knife, 5" x 36".  
 Planer, 26" x 26" x 6".  
 Planer, 48" x 48 x 10' Niles-B.-P., 2 hds.  
 Planer, 32" x 32" x 10' New Haven, 2 hds.  
 Punch press, Bliss.  
 Punch presses, No. 46 Bliss, weight  
 25,000 lbs., (6).  
 Radial drill, 3' Fosdick.  
 Shaper, 16".  
 Wire straightener.  
 25 Small grinder heads.

### FOR SALE BY

#### A. M. Stoehr Machinery Co., 844-846 North Wells St., Chicago, Ill.

Only Used Machinery of the Better Class.

Arbor press, No. 3 Atlas compound.  
 Bending rolls, 32", b. g., slip end.  
 Butt welders, No. 6, No. 9, No. 10A6  
 and No. 10A7 Thompson.  
 Compressors, steam & belt drive.  
 Drill presses, 4, 5 and 6-spdl. Allen.  
 Drill press, 20" Champion, b. g., p. f.  
 Drill press, 20" Barnes, 4-spindle,  
 power feeds, back geared.  
 Drill press, 36" Cin'ti, b. g., sl. ht.  
 Drying machines, no dust.  
 Gear hobber, No. 3 Barber-Colman.  
 Grinder, No. 10 Besly, disc.  
 Grinder, No. 70 Heald.  
 Grinder, 45" Yates, knife.

Hammer, 800 lb. Beaudry.  
 Lathes, 14" x 6" Sebastian.  
 Lathe, 16" x 8' American, q. c. g.  
 Lathe, 18" x 8' Advance, q. c. g.  
 Lathes, 50 other sizes and makes.  
 Milling machines, Wisconsin hand,  
 No. 34 Fox, No. 25 Becker.  
 Oil extractor, 26" Troy, hot. disc.  
 Pipe mch., 6" Jarecki, motor drive.  
 Presses: No. 4 Am. Can, straight  
 side; 500 ton hyd. straightening  
 Screw machine, No. 14 P. & W.,  
 13/16" capacity.  
 Tapping mch., Tuttle, 8" cap.  
 Other machinery; send in your list.

### FOR SALE BY

#### E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

##### DRILL PRESSES.

24" No. 25 Foote-Burt hvy. duty.  
 22" G. & E. sliding head, (2).

##### LATHES.

14" x 6' Sebastian.  
 18" x 8' Whitcomb Blaisdell, q. c. g.  
 18" x 10' Prentice, q. c. g.

##### MISCELLANEOUS.

Boring mill, 60" Bullard vertical.  
 Broaching machine, No. 2 Lapointe.  
 Gear cutter, No. 3 B. & S. auto.  
 Grinder, No. 3 B. & S. plain.  
 Grinder, 12 x 48" Cincinnati, cyl.  
 Grinder, 8 x 32" Landis plain.  
 Grinder, P. & W. vertical surface.  
 Grinder, 10" x 26" Ott universal.  
 Grinders, No. 10 Besly 18" dbl. disc, (4).  
 Hammer, 800 lb. W. W., board drop.  
 Hammer, steam, 800 lb. Massillon.  
 Miller, No. 33 Kemptsmith prod. type  
 Miller, No. 2 Milwaukee universal.  
 Planer, 32" x 32" x 8' New Haven.  
 Planer, 36" x 36" x 8' Betts.  
 Planer, 36" x 36" x 12' Rockford, new.

4 sp. Allen high speed b. b. drill.  
 32" W. F. & John Barnes, sl. head.

20" x 14' Putnam.  
 21" x 10' South Bend.  
 30" x 14' Niles.

Planer, 36" x 36" x 12' Woodward  
 Powell.  
 Planer, 38" x 38" x 8' Niles.  
 Punch pr., No. 4 & 4½ Niagara, o. b. i.  
 Punch press, No. 9 Toledo, o. b. i.  
 Punch pr., No. 37 Toledo, st. sd. gd.  
 Punch press, No. 76 Toledo, o. b.  
 Punch pr., No. 5 Toledo pl., o. b. i.  
 Punch pr., No. 7½ Bliss, st. sd., gd.  
 Punch pr., No. 81 Bliss, o. b., reduc.  
 Saw, Smith & Post cold saw.  
 Screw machine, No. 9 B. & S. semi-  
 auto, hand.  
 Screw mch., 2" x 24" Cleveland auto.  
 Turret lathe, 2" x 24" J. & L.  
 Turret lathe, No. 2 Pratt & W.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### The O'Brien Machinery Co.,

Bending rolls, 8', 8" and 6" diam.  
Bolt cutter, 4" Acme, single head.  
Bolt cutter, 1" Acme.  
Bolt cutter, 3" Acme, single head.  
Boring mill, 32" Rogers, turret hd.  
Drill, 3/8" spindle Baker Bros. heavy  
duty upright.  
Drill, Allen 8-spindle, high speed.  
Drill, Allen 6-spindle, high speed.  
Drills, Moline heavy duty hog, (2).  
Drill, radial, 4" Niles.  
Hammer, 800 lbs. Bement-Miles,  
double frame steam.  
Hammer, 1200 lbs. Bement-Miles,  
double frame steam.  
Hammer, 2,000 lb. United Engine  
Co. board drop.  
Lathe, 8"x10" Fitchburg Lo-Swing.  
Lathe, 16"x7" Pratt & Whitney.  
Lathe, 18"x9" Lehman.  
Lathe, 20"x9" Lehman.  
Lathe, 20"x10" Boye & Emmes.  
Lathe, 20"x14" Powell.  
Lathe, 23"x12" Blaisdell.  
Lathe, 24"x14" Niles.  
Lathe, 30"x21" Putnam.  
Lathe, 48"x16" Sellers.  
Lathe, 85"x18" Bement.  
Miller, No. 3 Hendey plain.

#### 119 N. Third St., Philadelphia, Pa.

Miller, No. 3/8 Fox.  
Miller, No. 3 Becker vertical.  
Pipe machine, 4" Oster.  
Pipe machine, 2" Cox, heavy duty.  
Pipe machine, 2" Oster.  
Pipe machine, 6" Oster.  
Pipe machine, 8" Curtis & Curtis.  
Planer, 32"x30"x10' Niles, milling  
head as well as planer head.  
Planer, 42"x46"x9' Pond.  
Planer, 50"x50"x18' Betts.  
Press, No. 61 Bliss.  
Press, No. 14-A Stoll inclinable.  
Presses, No. 374 Bliss straight side,  
6" stroke; several.  
Presses, No. 52 Bliss straight side,  
2" stroke; several.  
Presses, several Waterbury Farrell  
double acting, weight 2,000 lbs.  
Presses, Toledo No. 58 straight  
sided power, 34" stroke, (7).  
Press, No. 47 Niagara, deep throat.  
Shaper, 16" Hollingworth, back grd.  
Shaper, 18" Hollingworth.  
Shapers, 2-12" & 2-15" Springfield.  
Shapers, 12", 20" and 24" Juengst.  
Slotter, 12" stroke Bement.  
Turret lathe, No. 64 Bardon & Oliver,  
wire feed, cabinet base.

### FOR SALE BY

#### Wm. C. Johnson & Sons Machinery Co.,

#### 1001-3-5 N. Sixth St.,

#### St. Louis, Mo.

18"x 8' Lodge & Shipley.  
20"x 8' Lodge & Shipley.  
19"x10' Springfield.  
19"x12' Springfield.  
24"x12' Schumacher & Boye.  
24"x14' Schumacher & Boye.

20" Gould & Eberhardt.  
24" Gould & Eberhardt.

24"x24"x 6' Liberty.

No. 22 Kempsmith.  
No. 2 Rockford universal.  
No. 9 Kempsmith plain.

40" New Haven.  
24" Foote-Burt.  
16" Kern, high speed.

#### LATHES.

25"x16' Niles.  
27"x18' Springfield.  
33"x20' Draper.  
54"x16' Putnam.  
72"x30' Farrell, triple geared.

#### SHAPERS.

20" Wetherell, travelling head.

#### PLANERS.

32"x32"x10' Sellers.

#### MILLERS.

No. 12 Kempsmith plain.  
No. 3 Becker plain.  
Owen duplex.

#### DRILLING MACHINES.

6' arm Prentice radial.  
24" Aurora.

#### MISCELLANEOUS.

Hammer, 1100 lb. Morgan, steam.  
Marking machine, Mathews.  
Screw machine, 1" Garvin, hand.  
Screw machine, 1 1/2" Foster, hand.  
Slotter, 6" Sellers.  
Turret, 16" Bardon & Oliver, uni-  
versal.  
Turret, No. 4 Wood.

## SECOND-HAND MACHINERY

### FOR SALE BY

J. L. Lucas & Son, Inc.,

3 Fox St., Bridgeport, Conn.

#### STEAM HAMMER.

2,000 lb. Morgan & Williams double frame steam hammer, 32" stroke, 6' between housings, good condition..... \$1,500.

### FOR SALE BY

Box 16, Care A. H. Hitchcock, 1220 Caxton Bldg., Chicago, Ill.

#### SELF-OPENING DIE HEADS.

Will sell the following Self-Opening Die Heads for less than half for single heads, or will sell the entire lot to a dealer for less than one-quarter the present prices, all good as new:—10 National Acme No. 836, 18 National Acme No. 89, 1 H. & G. No. A-1½, 5 H. & G. No. C-H, 3 H. & G. No. A-1.

### FOR SALE BY

Wayne Machinery Co., Fort Wayne, Ind.

Branches: 18 W. 2nd St., Dayton O. 121 S. 3rd St., Louisville, Ky.

Carwheel borer and facer, 50" Sellers. Gear cutter, 26" Brown & S. No. 3. Hammer, 40 lb. Bradley, cush. h. Hammer, 250 lb. Little Giant, pwr. Punch, 5 mult., Bertsch, 6" gap.

Shear, squaring, 36" Bertsch, 18" gap, cap. 14 gauge, 99% new. Shear, No. 6 Quickwork rotary, 48" throat, 1" capacity.

See our large list on other page.

Our Guaranty: Money back if not satisfied.

### FOR SALE BY

J. Bleser Manufacturing Co.,

Springfield, Ill.

Adding mch., 9-column Burroughs. Chain hoists, Wright 2-ton h. s., new. Cranes, Whiting overhead, hand pwr. Crucibles, Nos. 60 and 70, new. Crucible furnaces, Fisher, fuel oil. Drills, 20" Barnes and Excelsior. Drill, bench, with motor, new, \$50. Drills, 34" and 34" Barnes, sliding hd.

Lathe, 17" LeBlond, rapid pwr., q. c. Lathe, 20"x8' Monarch, q. c. Millers, hand, No. 3 Burke. Oil tank, 8' dia. x 27' long, 1000 gal., 16" opening in center, practically new. Sand riddle, Champion, and motor. Snap flasks, Arcade 10x16x4Cx3D.

### FOR SALE BY

Brownell Machinery Co.,

11-13 Eddy St., Providence, R. I.

Boring mill, No. 32 Lucas horizontal, motor drive. Boring mill, No. 1 Lucas horiz. Boring mill, No. 1 Cleveland. Boring mill, No. 1 B. & S. horiz. Drill, 26" H. & W. sens. radial. Drill, 28" Hoefer. Drill, 3-spindle Reed Prentice. Gear cutter, Whiton 30x6½, hand f. Gear generator, 11" Gleason, bevel. Gear shaper, No. 612 Fellows. Grinder, 10x30 Norton plain. Grinder, No. 1 Bryant chucking. Lathe, 12"x 8' Seneca Falls. Lathe, 4"x 6' Flather, q. c. g.

Lathe, 16"x 8' Bradford. Lathe, 20"x 8' Whitcomb-Blaidsell. Lathe, 20"x10' Roulsted. Miller, No. 1 Garvin universal. Miller, No. 1-B Kearney & T. univ. Miller, No. 24 Brown & Sharpe pl. Miller, No. 2 Van Norman duplex. Planer, 17"x17"x4' Whitcomb-B. Planer, 22"x22"x5' Whitcomb-B. Planer, 24"x24"x6' Whitcomb-B. Planer, 25"x25"x6' Rockford. Planer, 30"x30"x8' Whitcomb-B. Shaft straightener, Rockford. Shaper, 8" Boynton & Plummer. Shaper, 20" Ohio.

## SECOND-HAND MACHINERY

### FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

#### LATHES.

42" Pond car wheel, motor drive.  
36" x 16' Sidney, d. b. g., q. c., new.  
24" x 14' Sidney, d. b. g., q. c., new.  
19" x 8' Sidney, d. b. g., q. c., new.

17" x 8' Sidney, d. b. g., q. c., new.  
15" x 6' Sidney, d. b. g., q. c., new.  
16" x 10' Carroll, d. b. g., q. c., new.  
13" x 8' 6" Carroll, a. b. g., p. c., new.

#### SHAPERS AND PLANERS.

14", 16", 20", 24" Steptoe shapers, new.  
7" Rhodes, precision, new shaper.  
16x16x42" Walter planer, 1 head.

24" x 24" x 6' Pease planer, 1 head.  
24" x 24" x 8' Hendey planer, 1 head.  
26" x 26" x 10' Cincinnati, 3 hds., motor.

#### MILLERS.

No. 6 Steptoe plain, b. g., new.  
No. 2 Garvin universal, new.  
No. 2 Putnam universal, used.  
No. 3 Burke, hand, new.

No. 4 Brown & Sharpe, plain, used.  
No. 1 Dow plain, new.  
No. 22 Garvin vertical, used.  
No. 24 Oesterlein plain, used.

#### DRILLING MACHINES.

48" Mueller plain, speed box, used.  
36" Dreser plain, cone drive, used.  
32" Superior, a. h., b. g., p. f., new.  
28" Superior, a. h., b. g., p. f., new.

21" Superior, b. g., p. f., new.  
20" Buffalo and Champion, b. g.  
16" Canedy-Otto plain, new.  
4-spindle Superior hi-speed, used.

#### MISCELLANEOUS.

Boring mill, 3" bar Binsse, hor.  
Boring mill, 42" Bullard, vertical.  
Grinder, No. 1 Fraser univ., new.  
Grinder, 10" x 36" Norton plain, used.  
Hack saws, 6x6 & 9x9' Peerless, new.  
Hammer, st., 1500 lb. Bement, a. leg.

Keyseaters, Nos. 2 & 4 Catlin, used.  
Pipe machines, 2", 4", 6" Oster, new.  
Pipe machine, 8" Loew, used.  
Press, hyd., Watson & S., 30 tons.  
Punch & shear, No. 58 Beloit, new.  
Shear, No. 46 Beloit, alligator, new.

## KELLER-MASTER



KELLER-MADE  
MASTER-BUILT

Riveting Hammers  
Chipping Hammers  
Scaling Hammers  
Jam Riveters  
Staybolt Riveters  
Rivet Busters  
Grinders  
Holders-On  
Sand Rammers  
Valveless Drills  
Corliss Valve Drills  
Accessories

Complete Catalog on Request

**KELLER**  
PNEUMATIC TOOL COMPANY  
GRAND HAVEN, MICHIGAN  
BRANCHES EVERYWHERE

**"New York's Greatest Clearing House—J. J. McCabe Lathe and Machinery Corporation"**  
**At McCabe's you get all that you expect—in used Machinery—and MORE**

The finest kind of Tools is the Quality that makes Reliability—NOT Rebuilding them over.

**30' Bed Lathe**

I. H. Johnson, Jr., & Co.'s Triple Geared, Heavy Pattern 50' swing; 30' bed, with internal Geared Face-plate, and Counter-shaft drive.

**24" Slotted**

Element heavy Slotted Machine, 16" stroke. Table has all the Automatic Feeds.

**"Hilles & Jones"**  
**60" Horiz. Punch**

No. 6 Heavy Horizontal Punch 60" throat, with capacity for punching about  $3\frac{1}{2}$ " hole thru 1" plate. Arranged for motor—no motor included. Weight about 68,000 lbs. A-1 condition.

**"Hilles & Jones"**  
**14' Bending Rolls**

Standard pattern—set in pyramid form with Drop-end Housing. Top Roll 14" diam., Lower Rolls 10" diam. Complete with Drop Housing—Absolutely A-1.

**10-16' Swing**  
**Upright Boring Mill**

"Botts Machine Co.'s" Extension type 10' adjustable to 16' Swing, with two Heads on the Crossrail, complete with Counter-shaft. Inspection can be made—mill in operation near Pitts-

**LATHES (USED)**

1— $60''$  Swing, Triple Geared Long Beds—  
1— $60''$  Swing, 60' bed, 50' between centers;  
Triple Geared Face Plate 48" diam.  $\frac{9}{16}$ " face, built by Israel Johnson, Jr., & Co.  
1— $60''$  Swing, 36' bed, 26' between centers;  
Johnson.

**OTHER LATHES**

68" Swing, 18' bed, New Haven, Triple geared

$\frac{21}{2}$ " Swing, Gibholt, like new,  $32''$  in gap,  
 $2\frac{1}{2}$ " Swing, Potter & Johnson, 2" hole,  
geared head.  
3x6 $\frac{1}{2}$ " Jones & Lamson Flat Turret, Bar  
Equipment.  
2x24" Jones & Lamson, Flat Turret, Bar  
and Chucking equipment.  
 $\frac{1}{2}$ " Automatic Screw Machine, Hartford

**GEAR CUTTERS**

Countersink on the counterbore. Inspection can be done in operation, next Pitts-

## GEAR CUTTERS

### HORIZONTAL BORING MACHINES

44" bar, "Niles," "Knee Type."

44" bar, "Niles," 64" Swing, power raise to table.

44" bar, Bement-Miles, "62" Swing, power raise.

44" bar, "Bement," power raise.

### RADIAL DRILLS

5' Arm, Dresen, Cone Drive.

4' Arm, Dresen, Cone Drive.

4' Arm, Cincinnati-Bickford, Speed-box Dr.

### SLOTTERS

24" stroke, "Niles-B.-P." (like new), with Motor Drive, complete with Motor.

10" stroke, "Betts," Cone Drive.

### PLANERS

48" x 48" x 15" Pond M. T. Co., 2 heads.

48" x 48" x 24" Sellers, 3 heads.

30" x 30" x 6" Cincinnati.

### MILLING MACHINES

Vertical, Brown & Sharpe, No. 5, table 6' x 6'2" with circular milling att.

Vertical, Cincinnati, No. 2.

Mfr. style, Hendey No. 5, with qk. change.

Mfr. style Becker-Brainerd, No. 7.

Plain, No. 3, Cincinnati, working surface

table 45" x 12",

Plain, No. 32, Brainerd, working surface

table 18" x 14",

Plain Keyseat Miller, horiz. and vertical

spindles, table 60" x 12", Newton Ma-

chine Tool Co.

65" Swing, 16' bed, New Haven, Triple

scars.

65" Swing, 16' bed, Putnam, Geared Hd.,

Quick ch., Motor dr.

30" Swing, 32' bed, Putnam, Geared Hd.,

Motor drive.

28" Swing, 16' bed, Johnson, Qk. change,

Taper att.

24" Swing, 12' bed, Putnam, Quick change,

Taper att.

20" Swing, 16' bed, American, qk. change,

Grd. Hd.

18" Swing, 16' bed, Schumacher & Roys,

18" Swing, 8' bed, American, Qk. change,

Taper att.

### DOUBLE SPINDLE LATHES

38/60" swing, 26' bed, 20' centers, McCabe,

with Geared Face-plate, Chuckjaws,

etc., like new.

26/48" swing, 18' bed, 12' centers, McCabe,

with Geared Face-plate, Chuckjaws,

etc., like new.

26/48" swing, 14' bed, 8' centers, McCabe,

with Geared Face-plate.

26/48" swing, 12' bed, 8' centers, McCabe,

with Plain Face-plate.

### DRIVING WHEEL LATHE

80" Swing, with Quartering att., Bement,

Dbl. Hd., turns both wheels same time.

### HO-SWING LATHE

24" x 60" Fitchburg, complete equipment.

### TURRET LATHES

28" Swing, Pond, Rigid type, 44" hole,

rapid traverse to Turret.

90" 28" x 12", Tapp. 16", Amstrace, 45", changes

36" 28" x 12", bed, Putnam, Geared Hd.,

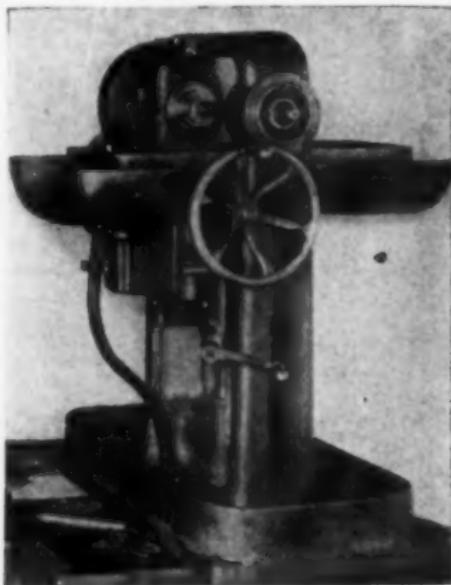
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# LUCAS MACHINERY SERVICE

TO CLOSE THEM OUT WE OFFER:

**20—Type "A" Briggs Milling Machines  
At \$275 each, Subject to Change in Price**

Each one is in fine condition and has counter-shaft, wrenches, and a new arbor. New oil pumps will be furnished at \$20.00 each extra.

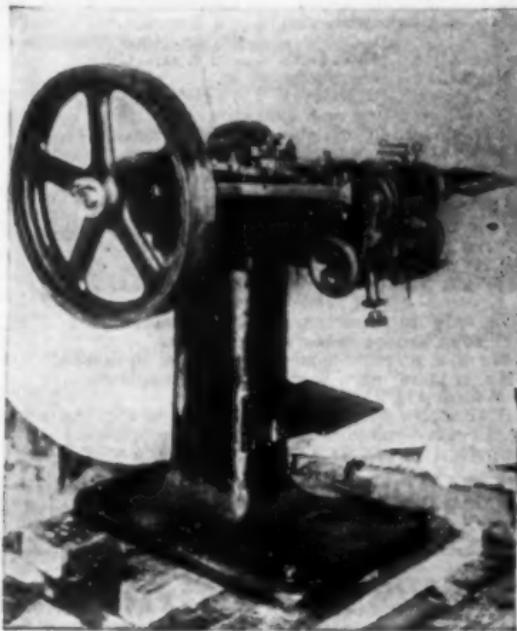


## DIMENSIONS

Traverse feed of table .....	16"	Arbor for No. 11 B. & S. taper .....	14" x 2"
Table Surface .....	24" x 8"	Spindle driving gear .....	14" x 2"
3 T slots for $\frac{5}{8}$ " bolts"		Ratio of gearing .....	4 to 1
Distance between housings ..	12 $\frac{1}{4}$ "	Weight .....	2,300 lbs.
Cutter space on arbor .....	10"	Floor space .....	42" x 52"
Maximum distance table to center of arbor .....	12"	8 changes of feed to table.	

**J. L. LUCAS & SON, Inc.**  
3 Fox Street, BRIDGEPORT, CONN.

# LUCAS MACHINERY SERVICE



## 21 No. 0 Farrel Foundry Solid Die Single Stroke Headers

Rated cap., dia. of blank.....	1/8"	Dia. of feed rolls.....	4 1/4"
Rated cap., length of blank ...	1 1/8"	Dia. and face of flywheel.	22" x 3 1/2"
Extreme length of feed.....	1 1/2"	R. P. M. of flywheel.....	200
Stroke of heading slide.....	2 1/2"	Floor space.....	29" x 41"
Dia. of heading die.....	1 3/16"	Weight of flywheel.....	110 lbs.
Dia. of cut-off die.....	9/16"	Weight of machine.....	1040 lbs.
Dia. of heading punch.....	13/16"		

All in exceptionally fine condition. Price each \$400.

F. O. B. Bridgeport, Conn.

**J. L. LUCAS & SON, Inc.**

3 Fox Street,

BRIDGEPORT, CONN.

## GOOD TOOLS AT ATTRACTIVE PRICES

### MILLING MACHINES.

Rockford No. 1 $\frac{1}{2}$  plain, latest.  
Becker No. 25 plain, with vise  
and c. s.  
Whitney No. 6 hand, power feed.  
Becker No. 8-C vert., reg. equip.

Cincinnati No. 3 vert., hi-power,  
arr. m. d.  
Burke No. 3 hand, on column,  
d. i. att., collets.

### ENGINE LATHES

Young 12"x5", elevating rest, with chuck.  
Blaisdell 13"x6" and 16"x6", elev. rest, with chucks.  
Flather 14"x6", compound rest, regular equipment.  
Reed 14"x6", compound rest, taper attachment, with chuck.  
Reed 18"x12", plain rest, semi-quick change.  
Lathe & Morse 20"x10" raised to 24" elev. rest.  
Reed 20"x16" compound rest, 1 $\frac{1}{2}$ " hollow spindle, chuck.  
Reed 22"x12", compound rest, 1 $\frac{1}{2}$ " hollow spindle.  
Blaisdell 26"x12", compound rest, heavy spindle.  
Perkins 40"x18", compound rest, with two chucks.

### SCREW MACHINES

Wood No. 4, 1 $\frac{1}{2}$ " cap., friction grd. head latest type.  
Garvin 1" cap., hand, complete set of collets.  
Garvin No. 2, s. p., plain head, 1 $\frac{1}{2}$ " cap., reg. equipment.  
Foster No. 1, 13/16" cap., hand, regular equipment.  
Pratt & Whitney 12"x18", hand.  
National Acme No. 816, 9/16" capacity, automatic, reg. equip.  
Gridley 2 $\frac{1}{2}$ " cap. 4-spindle auto., standard equipment.

### FLATHER 18" SINGLE GEARED CRANK SHAPER.

**LYND-FARQUHAR CO., Dept. G** Quality Machine Tools  
BOSTON 9, MASS.

## HIGH GRADE Machine Tools RE-BUILT

### PUNCHES

No. 8 L. & A. double end.  
No. 6 Beatty, 48" throat.  
No. 18 Williams-W. 30" throat.  
No. 11 Whiting, 12" throat.

### PRESSES

2C and C $\frac{1}{2}$  Ferracute.  
No. 74 $\frac{1}{2}$  Bliss, plain crank.  
No. 20 Bliss, o. b. inclinable.  
No. 857 Toledo r. & p. press.

### LATHES

21x10 LeBlond, quick change.  
24x12 Advance, quick change.  
24x14 Schumacher, q. change.  
18x14 LeBlond, l. change.  
19x12 Greaves Klusman, l. c.  
18x8 American, quick change.  
20 smaller lathes.

### MILLING MACHINES

Nos. 2, 3 & 4 Cincinnati plain.  
No. 3B Brown & Sharpe plain.  
No. 3B Milwaukee plain.  
No. 2G Hendey full universal.  
No. 3 H. LeBlond full univ.

### GEAR CUTTERS

No. 13 Brown & Sharpe, s. & b.  
No. 1 S. & S. gear hobber.  
No. 2 S. & S. gear hobber.  
30" Flather auto. spur.  
36" Cincinnati auto. spur.  
48" Newton gear hobber.

### PLANERS

24"x24x6" Gray, 1 head.  
32"x32"x10" Pond, 2 heads.

### DRILL PRESSES

30" Dreses, plain radial.  
48" Fosdick plain radial.  
20", 22", 24", 30", 36" and 42" drills.  
1—No. 1 Baush 8-sp. multiple.

### MISCELLANEOUS

Band saw, metal, 30".  
Boring mill, 72" Betts vertical.  
Grinder, No. 60 Heald, cylinder.  
Grinder, No. 23 Whitney, cyl.  
Keyseater, No. 2 Davis.  
Moulding mchz., Tabor, (6)  
Sprue cutter, No. 141 Toledo.

*Send for our latest stock list*

**JONES MACHINE TOOL CO.** 435 E. Pearl St.  
Cincinnati, Ohio

# Back to Lower Prices

In order to avoid moving our stock to our new Wareroom, we are offering our entire stock of used Machines and many new Tools at sacrifice prices. Do not ask us for a list but specify exactly what you want and we will quote you by return mail or wire, if necessary. The following are a few Machines picked at random from our stock:

## LATHES

9" to 13" Barnes, h. s., cp. r., new.  
10"x8" Summit, nearly new, (5).  
13-15-16 and 18 O. & S., h.s.c.r., new.  
18"x8" Fitchburg, hol. spdl., cp. r.  
20"x10" Hamilton, double back gear.

## TURRET LATHES and

24" Steinle, 6 $\frac{1}{2}$ " hol. spdl., grd. hd.  
1 $\frac{1}{2}$ " Tilted turret hand screw mchc.  
2x24 & 3x36 J. & L., dbl. equipment.  
18" S. & K. hand screw machine.

24"x12' Fitchburg.

24"x12' Fay & Scott.

25"x14' Schumacher & Boye.

8"x60" Fitchburg Lo-Swing.

21" and 24" Gisholt, turret.

## SHAPERS

14" Niles, traveling head.  
14" Smith & Mills, crank.  
16" Barker, back geared crank.

24" Walcott, geared.

20" Smith & Mills, geared.

16" Springfield, crank, back grd.

## PLANERS

24x24x 6' Hendey.  
24x24x 6' Pease.  
36x36x10' Sellers, 2 heads.  
44x44x12' Pond, 4 heads.  
48x48x16' Bement-Miles, 2 heads.

34x54x16' Sellers, 4 heads.

60x60x17' Betts, 2 heads.

60x60x20' Sellers, 4 heads.

68x68x20' New Haven, 2 heads.

84x84x32' Putnam, 4 heads.

## PRESSES

No. 856 Toledo, 36" stroke, 15,000 lbs.  
Perkins, dbl. crank, 18x24 bolster.  
No. 35 Niagara, Stiles type, (2).

No. 3 Robinson, 4300 lbs., o. b. i.

No. 6-A Willard 3400 lbs. inclinable.

No. 14 Robinson 1500 lbs. inc., (3).

## DRILLS and RADIALS

Henry & Wright sgl. spdl., high spd.  
34" Canedy-Otto plain, new.  
Sensitive 1, 2, 3, 4 and 6 spindle.

24", 26", 28" and 32", sliding head.

3" Morris plain, gear box drive.

4 $\frac{1}{2}$ " Prentice, gear box drive.

**Six new standard makes 20" Drills, each \$123.50**

## MILLING MACHINES

No. 25 Becker plain, (3).  
Ames Lincoln type, 10"x40" table.  
No. 2 Kempamith universal.  
No. 3 Brainard, 30x7 table.

No. 1 $\frac{1}{2}$  B. & S. plain.

No. 2 H Brown & Sharpe plain.

Briggs type "A" high duty, 24x8 table.

No. 32 Kempsmith Lincoln type, (3).

## GRINDERS

No. 78 W. & M. wet surface.  
10x24 Norton plain.  
Capital, internal, practically new.

Landis 10x24 universal.

Litter 10x20 universal.

36" and 66" Yates plate.

## MISCELLANEOUS

Band saws, metal, Klemm, (2).  
Boring mill, 12", 2 swivel heads.  
Brake, 8' Keene, for 16 gauge.  
Compressors, 9x8 and 12x10, new.  
Gear cutter, G. & E. 36".  
Gear cutter, Whiton 36"x9 $\frac{1}{2}$ " face.  
Hammers, 40 lb. Bradley, helve, (2).  
Hammer, Toledo, 5,000 lb. fric. brd.  
Hammer, Canton 6,000 lb. b.g. drop.

Motors, 1 to 50 h.p., 3 ph., 220 v., G.E.

Oil groover, Garvin, nearly new.

Oil separator, Springfield.

Pipe machines, 2", 4", 6" & 12".

Pumps, Gould triplex, 6x8" & 7x8".

Punch & shears, 4 thru 8, 12" throat.

Riveter, high speed, 8" capacity.

Shear, 5' Robinson, for 10 gauge.

Shear, 8' Robinson, for 18 gauge.

**Osborne & Sexton Machinery Co.**

**Columbus, Ohio**

Dayton Office: 1118 Lindsey Building, Phone Main 1524

## Surplus Machine Tools For Sale

- 1—Cincinnati Planer, heavy duty, 36x36x12 ft., 4 heads, two speed gear box drive.
- 1—Cincinnati Planer, 36x30x14 ft., 3 heads, two speed counter-shaft.
- 1—Cincinnati Plain Milling Machine No. 4, cone pulley drive, with vertical attachment.
- 1—Whitcomb-Blaasdell hollow spindle Lathe, 16x8, quick change, triple back geared.

These tools are fully as good as new. Some of them have been in operation only about three months. All machines can be inspected in operation.

**Julius Wegner Machine Works, Inc.**  
**63 Mills Street** **Astoria, L. I., N. Y.**

### A Few Items of Our Large Stock

- 4—Gisholt Mfg. Lathes, 6" hollow spindle.
- Conradson Geared Head Lathe, 28"x14".
- Bridgeford Geared Head Lathe, 27"x14".
- 2—Bridgeford 27"x9" d. b. g., q. c. g. Lathes.
- 2—Bridgeford Axle Turning Lathes, 24"x10" Lodge & Shipley Lathe.
- Monarch 16"x6", Bradford 16"x6", LeBlond 17"x6".
- 3—Fitchburg Lo-Swing Lathes; Landis Grinder.
- Whitcomb Blaasdell, Fay & Scott, and Putnam Lathes.
- 2—Fitchburg Model "B" 12"x36" Cylindrical Grinders.
- Yates No. 275 Grinders, 36" and 48"; No. 2 Am. Surface.
- Demco High Speed, and 20, 22 & 24" Drill Presses.
- Briggs Type "B" Milling Machine, traverse of table 72".
- Kempsmi No. 1 and Becker No. 25 Plain Millers.
- 24" Automatic Tool Works Shaper.
- 20" and 24" Drills; Foster Screw Machines.
- 10—Hendey No. 4 Lincoln Type Milling Machines.
- 20—Fox No. 3½ and Bristol No. 0 Milling Machines.
- 10—Becker No. 7H Millers; Foster Thread Millers.
- Hurlbut-Rogers 4" and Davis 6" Cutting-off Machines.
- Allen High Speed Drills 4, 5 and 6 spindle.
- New Williams & White No. 25 Bulldozer.
- Lea Simplex No. 18 Cold Saw; Marvel Hack Saws.
- No. 3 High Speed Riveting Hammer.
- Corliss and Automatic Engines; Toledo Spot Welder.
- 4—G. E. Motors, 3 Ph., 60 Cy., 5 & 25 H. P.
- 7-20" Lathe Chucks, 10—Air Chucks and 50—Drill Chucks.

**McDonald Machinery Co.** 712-714 N. Main St.  
ST. LOUIS, MO.

Fill Up the Gaps  
In Your Plant  
From Our List

of

Standard Machine Tools  
Hydraulic Tools  
Plate Tools  
Riveters  
Rolls  
etc.

Write us about your needs!

*We Rebuild the Tool—We buy Modern Tools*

THE NOTCH & MERRYWEATHER MACHINERY CO.  
CLEVELAND  
DETROIT CINCINNATI PITTSBURGH

# Grand Rapids Specials

Broaching machine, keyway, No. 4 Burr.  
Broaching machine, No. 2 J. N. LaPointe.  
Cut-off mch., No. 4 Nutter-B.  
Cut-off mch., No. 4 Cochrane-B.  
Drill, 20" Barnes, all-gear.  
Drill, 10-sp. Grand E. mult.  
Grinder, 6-A Bryant, chucking.  
Grinder, Norton universal cutter and tool.  
Grinder, Cincinnati universal cutter and tool.  
Lathe, 18" x 10' Schumacher-B.  
Lathe, 24" x 10' Schumacher-B.  
Marking mch., No. 3 Dwight-S.  
Pipe mch., No. 309-A Oster.  
Planer, 30" x 30" x 8" Pond.  
Press, No. 164 Consolidated  
Press, double crank geared,  
No. 164 Consolidated.

Profiler, No. 2-H Becker.  
Punch, mult., No. 3 Kane & R.  
Punch & shear, No. 34 Beloit.  
Radial, wall, No. 81 Canedy-O.  
Radial, 3' Fosdick Holloway.  
Radial drill, 3' Dreses.  
Riveting hammer, No. 3-A High Speed, large throat.  
Sand blast outfit, A-6 Pangborn, (2).  
Screw mch., 2" Cleveland auto.  
Shaper, 14" Davis, crank.  
Shear, power sq., 96" Ohl, 16 ga.  
Spline miller, 4", P. & W.  
"Tilted turret" lathe, No. 3 Wood.  
Turret lathes, 2x24 J. & L.  
Turret lathe, 3x36 J. & L.  
Turret lathe, No. 3 B. & O.  
Turret lathe, No. 5 Foster.  
Wire weaver, Smurr & Kamen semi-automatic.

## McMullen Machinery Company

"Everything in Shop Equipment" Grand Rapids, Mich.

## Fully Guaranteed Used Equipment:-

1—Whiton Centering Machine.  
2—24" Barnes vert. drill bk. grd.  
1—4-spindle Guarantee Drill.  
1—No. 1 Hoosier Heavy Duty Drill (new).  
1—20" 6-spdl. Barnes Gang Drill.  
1—Sigourney Plain Bearing Drill, capacity  $\frac{3}{8}$ ".  
1—Pilton Plain Bearing Sensitive Drill, 5/16" capacity.  
1—D-4 Colburn Drill.  
1—22" 4 sp. Barnes Gang Drill.  
1—No. 17 Foote-Burt Drill.  
1—3' Cincinnati Bickford Radial Drill.  
1—No. 12 Modern Grinder.  
1—No. 3 Brown & Sharpe Automatic Gear Cutter.  
1—No. 13 B. & S. Light Pattern Spur & Bevel Gear Cutter.

1—No. 17 Besly Disc Grinder.  
1—6x32 Norton Grinder.  
1—36" Fellows Gear Shaper.  
1—3-sp. G. & E. Gear Rougher.  
1—12x36 Cincinnati Plain cylindrical Grinder.  
1—No. 60 Head Grinder.  
1—20x8" Cisco Lathe (new).  
1—30x14' Boye & Emmes Engine Lathe.  
1—No. 2-A High Spd. Hammer.  
3—3" Gridley Auto., sgl. spdl.  
1—24" Gridley Auto., four spdl.  
Nos. 52 and 55 National Acme Automatics.  
Cleveland Automatics, as follows:— $\frac{1}{2}$ ",  $\frac{3}{8}$ ", 2",  $\frac{3}{4}$ ",  $\frac{5}{8}$ ".  
1—No. 2 Mitts & Merrill Keyseater (new).  
1—No. 2 Davis Keyseater.

**M. J. Walsh Machinery Co.**  
141 Sycamore St., Milwaukee, Wis.

# SIMMONS

## MILLERS

No. 2 LeBlond plain.	P. & W. 6"x14" thread miller.
No. 2-S Cincinnati grd.hd.univ., (4).	No. 6 Whitney & Standard hand
No. 3 Cincinnati hi-power plain.	millers, (25).
No. 3-S Cincinnati grd.hd.univ., (8).	No. 3 Cincinnati heavy duty geared
No. 3 Cincinnati hi-power vertical.	head vertical, (5).

## BORING MILLS

- 24" Bullard New Era Type Vertical Turret Lathe.
- 34" Bertram Vertical Turret Head Boring Mill.
- 36" Bullard New Era Type Vertical, cutting lubricating system.
- 37" Bullard Boring and Turning Mills, (2).
- 42" Bullard New Era Type Vertical, 4-jaw chuck, complete.
- 12' Bement Extra Heavy Boring and Turning Mill, 2 swivel heads.

## PLANERS

- 30"x30"x18' Cincinnati, two heads.
- 36"x36"x20' Woodward-Powell, four heads, rev. type motor.
- 42" Newton Rotary, belt or motor drive.
- 42"x42"x12' Simmons openside, two heads, NEW.
- 48"x48"x28' Cincinnati, two heads, NEW.
- 48"x48"x20' Ridgeway High Duty, four heads.
- 60"x60"x20' Woodward-Powell, 4 heads, 35 h. p. motor rev.

## RADIAL DRILLS

6' Reed Prentice pl., tapping attach.	4' Bement-Miles plain.
6' Pond plain, belt drive.	26" Sibley sliding head back geared
4' Hammond high speed, NEW.	drills, (4).
4' Bickford plain, complete.	36" Cincinnati, bl. grd., sliding hd.

## LATHES

- 84"x26' Putnam heavy duty, with d. c. motor.
- 60"x29"-56' Niles-Bement-Pond, motor drive, NEW, (4).
- 48"x29"-56' Niles-Bement-Pond, motor drive, NEW, (8).
- 42"x20' Niles-Bement-Pond, motor drive.
- 42"x18' Bement heavy duty, cone driven.
- 36"x34' Bridgeford Geared Head, q. c. g., NEW, (6).
- 36"x18' Putnam heavy duty, triple geared.
- 30"x12' high duty American, geared head, motor drive, with motor, (6).
- 27"x24' LeBlond heavy duty, d. b. g., q. c. g., NEW, (8).
- 27"x18' LeBlond heavy duty, q. c. g., with motor, (8).
- 24"x10' high duty American Geared Head, motor drive, (8).

## GRINDERS

14"x96" Norton plain, NEW.	No. 1 Norton univ. tool & cutter, (2).
18"x96" Norton plain, complete.	No. 2 Wilmart-Morman surface.
Brown-Sharpe planer type surface.	No. 5 Brown & Sharpe universal.

## MISCELLANEOUS

- 96"-84" and 72" Gould Eberhardt Gear Hobbers.
- No. 2-A Warner-Swasey Turret Lathe.
- Double End Punching and Shearing Machine, Niles-Bement-Pond, 1 $\frac{1}{2}$ " cap.
- 8" Saunders Pipe Machine, with dies, belt driven.
- 15" Hendey Friction Driven Shaper.
- 16" Milwaukee Back Geared Crank Shaper.
- 24" Hendey Friction Driven Shaper.
- 32" Cincinnati High Duty Shapers, NEW, (9).
- 30-Ton Eight Wheel Orton-Steinbrenner Steam Operated Standard Gauge, Locomotive Crane, 52' boom.
- Steel Lockers, practically brand new, (600).

**Simmons Machine Co., Inc.**

Albany, N. Y.

801 Singer Bldg., N. Y., 86-88 Exchange St., Buffalo, N. Y.

## Second-Hand Machinery

### BORING MILLS.

Four 24" Bullard vertical turret lathes, latest pattern, 4-jaw chuck.

Four 30" Bullard vertical boring mills, 3-jaw chuck.

30" Colburn vertical, belt feed, 3-jaw chuck, swivel turret head.

50" Bausch vertical, two swivel heads, plain table.

Binsse horizontal, 4" bar.

No. 1 Pawling & Harnischfeger horizontal.

### DRILLING MACHINES.

Four No. 117 Moline heavy single spindle "Hole Hog."

No. 310 Baker Bros. high speed heavy type, with compound table.

30" Wm. E. Gang plain radial, swinging table.

### GRINDERS.

No. 70 Heald internal. No. 17 Besly disc, NEW.

### ENGINE LATHES.

24" x 12" Reed, 4-step cone, compound rest.

32" x 16" Fay & Scott, with power feed turret on shears, fine condition.

54" x 24" American, triple geared into face plate, good condition.

### PLANERS.

38" x 38" x 8' Niles, 2 heads.

60" x 60" x 12" Gleason, 3 heads.

66" x 66" x 17' Harrisburg, 2 hds.

### PRESSES.

Four No. 27 Swaine inc., new.

No. 8 Cleveland inclinable, new.

### MISCELLANEOUS.

Kéyseater, No. 2 Baker.

Screw machines, 1" Smith, plain

Miller, No. 4 Hendey Lincoln.

head, wire feed, (3).

Pipe machine, 3" Stoever.

Turret lathes, 21" Gisholt.

**Marshall & Huschart Machinery Co.**  
17 S. Jefferson St. Chicago, Ill.

## SPECIALS

### Immediate Delivery

1-59 1/4 Toledo Straight Side Press, dbl. grd., 12" st., tie rod frame, weight 70,000 lbs., spring pressure attachment.

1-No. 2-W Bliss Wiring Press.

1-No. 69-N Bliss Cam, fly-wheel.

1-59 Toledo Straight Side Press, double geared, 12" stroke, weight 50,000 lbs.

1-77 1/2 Bliss Straight Side, double grd., 8" stroke, tie rod.

1-No. 666 Toledo Knuckle Joint Embossing Press, cap. 1,000 tons.

1-76 1/2 Bliss Straight Side Press, 8" stroke, tie-rod.

1-No. 14 Toledo Horn Press, fly-wheel type, table included.

1-Long & Allstaetter Mult.Punch, 7" shaft, 96" between uprights.

1-No. 2 Toledo Inc. Fly-wheel.

1-D-66 Ferracute Reducing Press.

1-No. 3 Toledo Inc. Fly-wheel.

1-D-65 Ferracute Reducing Press.

1-No. 27 Bliss Knuckle Joint Embossing Press, cap. 1,000 tons.

1-No. 72 Consolidated Press.

1-No. 65 Consolidated Press.

1-28" Gould & Eberhardt Shaper.

1-No. 4 Williams-White Bulldozer.

1-28" Smith & Mills Shaper, single pulley drive.

**D.C. Oviatt & Co.,** 401 Garfield Bank Bldg.,  
CLEVELAND, OHIO

Presses, Sheet Metal and Can Machinery.

# Priced To Sell Now

## BORING MILLS

100" Betts, 3 heads, like new.  
 78" Betts heavy, modern.  
 60" Niles-Bement-Pond, hvy., single pulley drive.  
 60" Bickford, standard, 2 heads, low price.

## DRILLING MACHINES

8' Niles Plain Radial.  
 6' Baush, Plain Radial, like new.  
 6' Bickford, Semi-Universal Radial.

## DRILLS—Multi-Spindle

4—(NEW) Aurora 28", s. h., b. g., p. f., auto. stop.  
 6 spindle Baush, 1" capacity.  
 3 & 4 spindle Barnes, 20" gang.

## LATHES

60"x20' Fifield, D. C. Motor Drive.  
 52"x22' New Haven triple geared, pulley drive.  
 60"x17' New Haven Pulley.  
 36"x14' Putnam triple geared.  
 36"x12' Pond triple geared.  
 30"x12' Johnson.

28"x18' Johnson.  
 24"x8' & 10' American.  
 20"x8' Lodge & Shipley.  
 14"x6' Mulliner tool room.  
 14"x6' Monarch.  
 12"x5' P. & W.  
 10"x4' Seneca Falls.

## MILLING MACHINES

8—No. 5C Becker Verticals, new, price right.  
 No. 3 LeBlond, plain, high duty.  
 No. 5 Becker-Brainard Plain.  
 No. 2 Kempsmith Universal.  
 50"x8' Ingersoll Slab.

No. 25 Becker Plain.  
 No. 2 Hendey Norton Plain.  
 No. 14 Hendey Norton Universal.  
 No. 2 Van Norman Duplex.  
 31"x5' Newton Vertical Slab.

## PLANERS

84"x84"x18' Sellers, 3 heads, belt driven.  
 48"x48"x14' Powell, 4 heads, reversible motor drive, complete with electrical equipment.  
 48"x48"x16' Bement-Miles, 4 heads, belt driven.

42"x42"x12' Pond Machine Tool Co., 2 heads, belt driven.  
 36"x36"x12' Niles-Bement-Pond, 3 heads.  
 30"x30"x10' Flather, 2 heads, belt driven.  
 30"x30"x6' Gray, 3 heads, parallel dr.

## PRESSES

No. 55 Adriance S. A.  
 No. 512 Bliss, triple action.

No. 1 Farrel straight side, 8" stroke.  
 D. D. 4 Ferracute, D. A., roll feed.

## SHAPERS

2—16" Newark, box table and vise.  
 4—15" Smith & Mills, box table and vise.

4—15" Hendey, box table and vise.  
 3—48" Morton, extra hvy., draw-cut.  
 18" Fitchburg, traveling head.

## MISCELLANEOUS

10' Bement Boiler Plate Rolls.  
 18" Betts heavy type slotter.  
 8" New Haven Slotter.

Sellers heavy Punch, 2" capacity.  
 No. 28 Buffalo Slitting Shear (new).  
 Newbold Rotary Shear, 4" cap.

## Graves Machinery Exchange

Warehouse and R. R. Siding:  
 Johnston Ave. & Monitor St.  
 Jersey City, N. J.

Offices: Suite 482  
 50 Church St., New York City  
 Telephone: Cortlandt 665

# Harris Brothers Co.

## 1475 W. 35th St., Chicago, Ill.

### Turret Lathes and Screw Machines

24" Gisholt with 4 way turret tool post on carriage, hex turret, on bed, with power rapid traverse, taper attachment, screw cutting 2 step cone, triple geared, 6 $\frac{1}{2}$ " hole in spindle (10).  
24" Steinle; same (1).  
28" Pond Rigid; same (2).

### Grinders

16x60 Landis crank shaft.  
12"x36" Fitchburg plain, (3).  
6x32 Norton, plain cylindrical.  
Fitchburg, Low-Swing Lathe, 8" swing, 96" centers, (3).  
Gisholt Wet Tool Grinder.

### Hammer and Punch Presses

No. 55 D. G. G. Ferracute, sided, single action, 16" stroke. Weight about 16000 lbs. 70 tons pressure.  
No. 56 D. G. G. Ferracute, St. Sided, single action, 16" stroke. Weight about 22,000 lbs. 100 tons pressure.  
No. 201, Ferracute, St. Sided 10" str. Weight about 44,000 lbs. 200 tons pressure.  
Erie 800 lbs. single frame, (2).

### Drill Presses and

8-spdl. Baush, univ. adjustable 20" circular head, capacity 1".

### Planers, Shapers and Slotters

20" Pedrick & Ayer, 2 tables.  
12" Putnam rotary table slotted.

### Milling Machines

36"x24"x20" Ingersoll horizontal planer type, with 2 heads on cross rail, with 4 spindles, new.  
24"x24"x12" Ingersoll horizontal slab milling machines (6) new.  
No. 4 Hendey Lincoln milling machines (250).  
No. 7 H. Becker Lincoln milling machines (250).  
No. 6 Whitney hand (10).  
No. 22 Garvin, vertical.  
No. 5 Becker, vertical.  
No. 3 Brown & Sharpe, vertical.  
No. 2 Brown & Sharpe, plain.  
No. 3 Brown & Sharpe, universal.  
No. 3 Pedrick & Ayer, universal.

18" Gisholt, 6 $\frac{1}{2}$ " hole, screw cut'g (2).  
Pratt & Whitney No. 1, hand screw mch., 7/16" auto. chuck cap. (6).  
Gridley 3 $\frac{1}{2}$ " single spindle auto. (16).  
18"x36" Milwaukee, tur. on carr. (6).  
12"x36" Symington 4" hole in spindle set. over turrets, (10).  
16"x36" Windsor b. g. fric. head.

### Ventilating Blowers

American Blower Co., (Sirocco Type) 5'2"x7'4", upper casing 4'x8'. Double Inlet 36". Upper Cone shaped quadruple Outlet 36". Capacity 25,000 cu. ft. per min. (12).

### Boring Machines

No. E-57 Ferracutes, 1500 tons pressure, 2 $\frac{1}{2}$ " stroke. Weight about 130,000 lbs.  
Erie 1,500 lbs. single frame.  
1000 lb. Lennox, friction board drop.  
1250 lb. Massillon, steam drop.  
30" Q. C. sgl. end cap, 4 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ "  
Wiener T40 shear for 15" I Beams,  
4" x 8" angle, wt. 20,000 lbs.

### Boring Machines

Foote-Burt 2 spdl. adjustable vert.

### Miscellaneous

Bending roll, 6' New Doty, capacity 1" plate.  
Bolt cutter, 1" Acme, 4-spindle.  
Centering machine, 9" Whiton.  
Cutting-off machines, for 2 $\frac{1}{2}$ , 3", 4"  
& 6" pipe and shafting.  
Motors, 8 Westinghouse, 250 h. p.,  
440 volt, 60 cycle, 3 phase, speed 514  
r. p. m., Type C.C.L. squirrel cage,  
with base, with starters.  
Nut facing machines.  
Nut tapper, Acme 4-spdl. 1 $\frac{1}{2}$ " vert.  
Pipe threaders, Curtis 2 $\frac{1}{2}$ -4 & 6.

# Second Hand Machine Tools

## BORING MACHINES.

4" bar Detrick & Harvey floor type.  
No. 3A Universal horiz., table type.  
No. 2 Beaman & Smith, floor type,  
4" spindle, motor drive.

24" bar Bement-Niles horizontal.  
No. 1-3" Lucas horizontal.  
34" Colburn vertical, turret head.  
38" Niles vertical, 2 heads.

## DRILLS.

14" Sensitive, two tables.  
3-sp. Henry & Wright sens. b. b.  
3 spindle Taylor & Fenn sensitive.  
20" Prentiss Bros. sliding head, b. g.  
22" Rockford, tapping att.  
24" Pratt & Whitney, b. g. & p. f.  
42" Cian-Bick, sliding head, b. g.,  
p. f., cone drive, tapping att.  
No. 1 Rockford horizontal.

20" Baker Bros. style M, 4 h. p. mtr.  
No. 310 Baker Bros. heavy duty.  
6-sp. Hendey, pwr. feed to each spdl.  
No. 30-12 spindle Bausch multiple.  
No. 12-8-spindle Natco multiple.  
No. 22-16-spindle Natco multiple.  
4" Bickford plain radial.  
4" Dreses plain radial.

## GRINDERS.

3"x18" Norton, plain cylindrical.  
6"x22" Norton, plain cylindrical.  
10"x48" B. & S. plain cylindrical.  
10"x30" Landis plain cylindrical.  
No. 18-12"x120" Landis plain cyl.  
18"x36" Norton plain, self contained  
motor drive.  
No. 3 Modern universal.  
No. 3-12x40 Modern universal.  
10" Garrigus rotary surface.

B. & S., oscillating ball race.  
No. 11 Rivett oscillating.  
No. 5 Rivett hand feed oscillating.  
No. 34 Van Norman internal.  
No. 6 Rivett internal.  
20" Besly disc.  
No. 8 A Bryant internal.  
18" Ney double disc.  
No. 60 Heald cylinder.

## LATHES.

No. 5 Rivett bench, slide rest.  
11x5 Seneca Falls, c. r., p. c. f.  
13"x6" Willard c. r., p. c. f.  
14"x6" Reed c. r., p. c. f., t. a.  
16"x8" Flather, q. c., c. r., p. c. f.  
18"x8" Prentiss Bros. geared hd., ck.  
18"x8" Hendey c. r., p. c. f., tap. att.  
20"x19" Reed, c. r., p. c. f.

22"x8" Schumacher-Boye, c. r., p. c. f.  
22"-24"x8" Lodge & Shipley selective  
head, manufacturing.  
26"x12" Putnam, c. r., d. b. g.  
32"x14" Hamilton, c. r., p. c. f.  
38"x20" New Haven, c. r., p. c. f.  
56"x24" Wood & Light, c. r., p. c. f.

## MILLERS.

No. 14 Garvin plain.  
Rivett hand, precision.  
No. 2 Cincinnati plain, all feeds.  
No. 3 Cincinnati plain, cone drive.  
No. 4 Cincinnati plain, all feeds.  
No. 2-A Kempsmith plain, b. g.

No. 1 Cincinnati univ., cone drive.  
No. 12 LeBlond univ., motor drive.  
No. 12 Cincinnati univ., cone drive.  
Nos. 3 & 4 Cincinnati high pwr. vert.  
No. 4-B Becker vertical.  
No. 12 B. & S. Manufacturing.

## TURRET MACHINES.

16" Acme univ. friction back gear.  
20" Steinle heavy duty, geared head.  
20x10 Fay & Scott univ. turret lathe.  
24x10 Lodge & Davis turret.  
24" Gisholt turret, 6" hollow spdl.  
Fay automatic turret lathe.  
22"x24" J. & L. flat turret, bar equip.

3"x36" J. & L. chuck or bar equip.  
4" Bardons & Oliver turret, motor.  
No. 24 Garvin screw machine.  
No. 3 Windsor w. f. screw mach.  
4" 4-spindle National Acme auto.  
16" 4-spindle National Acme auto.

## MISCELLANEOUS.

Broaching mach., Nos. 4 & 5 J. N.  
Lapointe.  
Compressor, 8x8 Clayton single air.  
Gear cutter, 36"x8" B. & S. spur.  
Pipe mc., No. 84 Curtis & Curtis.  
Planer, 24x24x6 Flather, one head.  
Planer, 30x30x8 Pond, 2 heads.  
Planer, 36x36x12 Cincinnati, 4 heads.

Planer, 36x30x14 Cincinnati, 3 heads.  
Planer, 48x48x16 Sellers, 3 heads.  
Planer, 60x48x14 Gleason, 2 heads.  
Profiler, No. 13, P. & W., 1 spindle.  
Punch & shear, 10" throat, 1" cap.  
Shaper, 14" P. & W. crank.  
Shapers, 15" and 24" Hendey friction.

# HENRY PRENTISS & CO.

INCORPORATED

NEW YORK, N. Y.

Warehouse, JERSEY CITY

# S-T-O-P

## These Tools are Priced Right

### LATHES

3-14" x 6' Monarch double back geared Engine Lathes, quick change geared feeds, equal to new. Price, each.....	\$ 500.
4-14" x 6' Flather single back geared Engine Lathes, quick change geared feeds, equal to new. Price, each.....	500.
3-12" x 5' Reed Prentice plain change geared Engine Lathes, equal to new, each.....	450.
2-14" x 6' Hendey tool room Engine Lathes, with taper attachments, fairly good condition. Price, each.....	450.
4-36" x 14' Lodge & Shipley geared head Engine Lathes, face plate drive, like new, each.....	4500.

### PRESSES

1-59 Toledo Punch Press, like new.....	\$6000.
1-59 1/4 Toledo Punch Press, like new.....	7000.
1-69 Toledo Inclinable Punch Press, with cam drawing.....	800.
5-No. 5 Toledo Inclinable Punch Presses, like new, each.....	800.
1-No. 11 Perkins Geared Punch Press, equivalent to 76 Bliss.....	700.

### GRINDERS

2-12x72 Norton Plain Grinders, latest type, each.....	\$ 400.
1-14x72 Norton Plain Grinder, latest type.....	1500.
1-10x36 Norton Plain Grinder, latest type.....	1350.
2-No. 2 Brown & Sharpe Universal Grinders, each.....	800.
1-6x32 Norton Plain Grinder, latest type.....	800.

### MISCELLANEOUS

1-No. 6 Fellows Gear Shaper, serial 5269, 36" capacity, like new.....	\$1800.
1-3-A Cincinnati Spur Gear Cutter, 26" capacity, excellent condition.....	750.
1-Flather Spur Gear Cutter, 36" capacity, excellent condition.....	750.
1-30" Flather Spur Gear Cutter, excellent condition.....	700.
3-No. 75 Heald Internal Grinders, with all regular equipment, excellent condition, each.....	600.
1-No. 22 Heald Rotary Surface Grinder, shaper head, 12" magnetic chuck, excellent condition.....	1150.

### PLANERS

1-56" x 56" x 16' Gray Planer, 2 rail heads, 2 side heads, excellent condition.....	\$6000.
1-30" x 30" x 8' Gray Planer, 1 rail head, excellent condition.....	1400.
1-24" x 24" x 6' Pratt & Whitney, 1 rail head.....	500.
1-18" x 18" x 5' Pratt & Whitney, 1 rail head.....	400.

### SHAPERS

1-24" Gould & Eberhardt back geared crank Shaper, good condition.....	\$ 500.
1-20" Gould & Eberhardt back geared crank Shaper, good condition.....	400.
1-16" Gould & Eberhardt back geared crank Shaper, good condition.....	450.
1-14" Smith & Mills crank Shaper, good condition.....	400.

**The Empire Machinery Exchange Co., Inc.**  
517-519 The Newman-Stern Bldg., CLEVELAND, OHIO

# New Machinery For Sale

In Stock at Chicago and New York

## Lathes

24" x 12' Chard, q. c. g., d. b. g.	12" x 5' 6" Davis tool room,
26" x 11' Chard, q. c. g., d. b. g., (2).	6" x 30" and 6" x 36" Dalton bench.
20" x 10' Wickes, q. c. g., d. b. g.	Full line, Rivett precision bench
16" x 8' Whitcomb-Blaisdell.	Full line Stark precision bench.
14" x 8' Cisco, q. c. g., d. b. g.	

## Drilling Machines

3' Wisconsin sensitive radial.	21" Cleveland upright, (5).
32" Cleveland sliding head.	20" Wisconsin, all-gearred, (2).
28" Cleveland sliding head.	20" Canedy-Otto, upright, (4).
25" Cleveland upright.	14" U. S.
23" Cleveland, upright.	Belt and motor driven bench.
23" Snyder upright.	Van Dorn portable electric.
23" Cleveland upright.	

## Boring and Drilling Machines

No. 9 Pawling & Harnischfeger, (2). | No. 12 Pawling & Harnischfeger.

## Milling Machines

No. 2-B Fox plain.	Burke bench.
Nos. 1-A, 1-B and 6-B Fox plain.	U. S. No. 1, hand.

## Grinders

No. 3 Modern universal.	Webster & Perks, No. 2 universal.
No. 1 Wilmarth & Morman univ.	No. 1 Norton cutter and tool.
Lafayette universal.	Grand Rapids drill—various sizes.
10" x 32" Ott universal.	Partridge floor stands, (all sizes).
No. 103 Rivett internal.	Strand electric, flexible shaft.
No. 2 Reid surface.	Dumore, (all sizes).
6" x 6" Ott internal.	

## Shapers

24" Milwaukee.	16" Milwaukee.
20" Milwaukee heavy duty.	7" Rhodes horizontal.

## Hack Saws

Peerless, (all sizes).	6" x 6" Starrett.
No. 1 Racine.	6" x 6" Economy.

## Miscellaneous

Arbor presses, Atlas, all sizes.	Press, Lebanon, foot.
Buffing machine, No. 2 Blount.	Shear, 18-H Lenox, throatless.
Filing machines, Nos. 2 & 3 Barry.	Tinners' rolls, Pexto.

## USED MISCELLANEOUS

Cold Saw, No. 15 Lea Simplex.	Lathe, 24" Steinle turret.
Lathe, 14" x 5' Dreses Monitor. (2).	

# Dale Machinery Co., Inc.

Formerly

DALE-BREWSTER MACHINERY CO., INC.

541-7 W. Washington Blvd., - - - Chicago  
54-60 Lafayette St., - - - - - New York

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# NEW YORK'S GREATEST STOCK

ATTRACTIVE PRICES

DEPENDABLE MACHINES

SATISFIED CUSTOMERS

## PARTIAL LIST

### Punches and Shears

Farrel, 9" throat, punch 1" in 1", shear 8" x 1" flat, 1" round. Standard punch and shear, 40" throat, cut 4" x 1", direct acting. Pels beam shear, cap. 15" I-beams. Lenox rotary shear, 32" throat, 2" cap., belt drive. No. 5 Quickwork rotary shear, 48" throat, cap. 1" metal, motor drive. No. 3 Quickwork rotary, 37" throat, cap. 3 1/8" metal, belt drive. New Oeking hand shear, cap. 2". No. 121 Toledo boilermaker's punching and riveting press, 60" horn. 12" Covington power gap shear, capacity 1", 18" gap. 48" Covington gap shear, 12" gap, 1" plate capacity.

### Presses

No. 34-A Bliss toggle drawing, str. blank holder 8", stroke of plunger 12", will receive blank 20" dia., weight 16,200 lbs. Two No. 666 Toledo knuckle joint, 2 1/2" str., 1,000 t. pressure, 80,000 lbs. Three No. 604 Bliss rack-and-pinion reducing, ad. str. 4" to 42", weight 12,500 lbs. No. 657 Toledo rack-and-pinion reducing, adjustable stroke 5" to 40". Two No. 856 Toledo rack-and-pinion reducing, ad. str. 5" to 36". No. 16 Bliss horning and wiring, 24" stroke, weight 1,250 lbs. No. 3 Farrel, 1 1/2" str., wt. 1,700 lbs. P-3 Ferracut, 1 1/2" str., wt. 3,100 lbs. DG-5 Ferracut, geared, 3" stroke, weight 8,700 lbs. Five V. & O. No. 10 dbl.-acting str. of slide 1", stroke of plunger 1 1/2". No. 2 Mansfield dbl.-acting, str. of slide 1", stroke of plunger 1 1/2". Behrendt dbl. acting o. b. grd., str. slide 1 1/2", stroke of plunger 3". Two 7" Geo. A. Ohl power brakes, str. 24", cap. 1" metal, wt. 25,000 lbs.

### Saws

6" x 6" Racine, high speed. 6" x 6" Marvel, h. s., auto. stock feed. New No. 3 Ryerson friction, h. speed, capacity 24" I-beams or equivalent, motor drive.

### Vertical Boring Mills

120" Niles, 2 swivel heads. 80" Niles Bement Pond, 2 swivel hds. 72" Niles, 2 swivel heads. 64" Poole, 2 swivel hds., thread-cutting attachment. 44" Niles, 1 swivel hd., 1 turret hd. 42" Putnam car wheel borer, hub-facing attachment and crane. 36" Niles car wheel borer, with crane. 32" Rogers swivel turret head, universal jaws in table.

### Horizontal Boring Mills

Bement cylinder 8" bar, 12" between facing arms. Barrett No. 2 cylinder, 5" bar. Barrett boring and facing, 3 1/2" bar, having auxiliary head, set at right angles to main head. Beaman & Smith No. 2 floor boring, drilling and milling 4" bar. Lucas "Precision" boring, drilling and milling 3 1/2" bar, table 48" x 30". Niles boring and drilling, 4" bar. Betts boring and drilling, 5" bar. Newark boring & drilling, 4 1/2" bar. Bement boring & drilling, 3 1/2" bar. Newark boring & drilling, 3" bar. Bement boring & drilling, 3 1/2" bar. Barnes drilling and tap., 2 3/16" bar. Underwood type, 4 1/2" bar, fl. pl. 8' x 9'.

### Planers

96" x 96" x 37" Hewes & Phillips, 4 heads and an auxiliary head. 14" Hillies & Jones plate planer, double tool holder. 72" x 70" x 14" Sellers, 3 heads, has widening blocks. 48" x 48" x 14" Patch heavy duty, 4 heads, motor drive, latest type. 42" x 42" x 14" Pond McHe. Co., 4 hds. 40" x 36" x 11" New Haven 1 head. 36" x 36" x 20" Woodward-Powell, 2 hds. 36" x 36" x 12" Bickett, heavy duty, 2 heads, motor or belt drive. 36" x 36" x 12" Bickett, heavy duty, 1 head, motor or belt drive. 36" x 36" x 16" Detrich & Harvey open side, 1 rail head, 1 side head. 16" x 16" x 42" Walter Bros., 1 head. 55" x 46" x 14" Lincoln, 4 hds, for stone. Two 28" Newton pl. index centers.

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Offices: 50 Church St., NEW YORK CITY

Machine Shop and Warehouses: 220-236 Culver Ave., JERSEY CITY, N. J.

# ReMANUFACTURED - (ORIGINATED BY US) - MACHINE TOOLS

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## LATHES.

- 8-8" x 60" Fitchburg Lo-Swing.
- 1-Bridgeford hvy. duty d. end axle.
- 30-14" x 6' Reed ex. hvy. pl. turning.
- 6-16" x 6' Reed.
- 12-17" x 6' LeBlond mgfr's. auto.
- 15-18" x 8' Boye & Emmes, belt fd.
- 21-19" x 8' LeBlond, q. c. g., c. r.
- 27-19" x 8' LeBlond, hex. carr. tur.
- 31-19" x 8' LeBlond, p. f. turret.
- 91-20" x 8' American, c. r., q. c. g.
- 12-29" x 8' American, p. f. turret.
- 3-20" x 8' American, motor arr.
- 2-20" x 12' American, c. r., q. c. g.
- 26-21" x 10' LeBlond, c. r., q. c. g.
- 34-21" x 10' LeBlond, carr. turret.
- 19-22" x 8' Davenport.
- 1-22" x 8' Lodge & S., motor arr.
- 13-26" x 9' Bridgeford, c. r., q. c. g.
- 70-26" x 10' Bridgeford, c. r., q. c. g.
- 23-26" x 12' Bridgeford, c. r., q. c. g.
- 2-26" x 15' Bridgeford, c. r., q. c. g.
- 2-26" x 20' Bridgeford, c. r., q. c. g.
- 32-26" x 10' Niles-B.-P., c. r., q. c. g.
- 1-36" x 12' Walcott, c. r., q. c. g.
- 1-26" x 12' Putnam, c. r., semi q. c. g.
- 1-27" x 20' Lodge & Davis engine.
- 6-30" x 11' American, geared head.
- 2-30" x 11' Houston, Stanwood & G.
- 19-22" x 12' Pittsburgh, c. r., q. c. g.
- 2-36" x 19' Johnson, triple geared.
- 15-36" x 30" Pittsburgh grd. hd.
- 4-36" x 37' Niles-B.-Pond grd. hd.
- 4-40" x 12' Fifeild, triple geared.
- 1-40" x 18' Fifeild, triple geared.

## MILLERS.

- 53-No. 6 Whitney hand.
- 62-Garrigus hand.
- 22-Van Norman hand.
- 26-No. 4 Loew Victor Lincoln.
- 11-No. 12 Pratt & Whitney Lincoln.
- 50-No. 7 Becker Lincoln.
- 1-Type B-34" Briggs.
- 2-12' Pratt & Whitney semi-auto.
- 2-18" Cincinnati automatic.
- 1-17" x 10' Beaman & Smith, 3 hds.
- 1-30" x 12' Newton slab, 2 spdis.

## 1-48" x 10' Newton slab.

- 3-No. 2 Pratt & Whitney hand.
- 1-No. 2 Chicago hand, p. f.
- 62-No. 3<sup>1</sup> Fox, p. f.
- 1-No. 1 Dow plain.
- 1-No. 4-B Becker vertical.
- 2-No. 4 Cincinnati plain, s. p. d.
- 111-No. 4 Hendey Lincoln.
- 7-Putnam semi-automatic.

## BORING MILLS.

- 1-72" Colburn vertical.
- 1-10' Niles vertical.
- 1-4" bar Niles horizontal.
- 1-Beaman & Smith horiz., 2 heads.
- 1-2 spindle Espen-Lucas, 2 heads.

## SHAPERS AND PLANERS.

- 2-26" Kelley, back geared.
- 2-36" x 13" x 14" N.-B.-P., frog & sw.
- 1-56" x 56" Gray, 2 heads.
- 1-72" x 72" x 14" Niles planers, 4 hds.
- 1-96" x 72" x 20' Bement-M., 4 hds.

## TURRET AND SCREW MCHS.

- 8-8" Pratt & Whitney screw.
- 1-1" Pratt & Whitney screw.
- 3-2" Pratt & Whitney screw.
- 8-No. 2 Pratt & Whitney screw.
- 14-No. 2 Warner & Swasey screw.
- 5-No. 2 Foster screw.
- 5-No. 3 Foster screw.
- 3-No. 4 Warner & Swasey.
- 17-No. 4 Wood turret screw.
- 2-3-A Warner & Swasey.
- 2-29" P. & W. grd. hd., chucking.
- 3-24" Steinle turret.
- 1-No. 6 Brown & Sharpe screw.
- 4-No. 75 4-sp. N.-Acme auto screw.
- 1-No. 4-1<sup>1</sup> Southworth screw.
- 2-3" x 36" Jones & L. grd. feed.
- 1-3" x 36" Acme turret.

## GRINDERS.

- 12-American drill.
- 1-No. 2 Garvin hole.
- 2-No. 70 Heald internal.
- 1-12" x 96" Landis plain.
- 1-No. 2 Bath surface.
- 1-8" x 48" Thompson surface.
- 2-12" x 36" Landis plain.

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HILL, CLARKE & CO. OF CHICAGO  
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# IN STOCK For Immediate Delivery

## BORING MILLS

No. 9 Giddings & Lewis horizontal.  
60" Bullard, 2 plain heads.

## DRILLING MACHINES

16" Cleveland, h. s. b. b. Drill.  
6' Gang Radial Drill.  
6' Prentice Radial Drill.

## GEAR CUTTERS

No. 3 Farwell Gear Hobber.  
8" Hercules.

## GRINDERS

No. 12 Brown & Sharpe universal.  
8"x40" Morse Grinder.  
14"x50" Norton Grinder.  
No. 12 Modern Grinder.

No. 8 Besly Disc Grinder.  
No. 10 Besly Disc Grinder.  
Gisholt Tool Grinder.

## LATHES

16"x 6' Bradford, compound rest.  
16"x 8' Hamilton style "A", taper and relieving attachment.  
18"x10' Bradford, compound rest, double back gear.  
32"x18' Bradford, compound rest.  
PORTER CABLE Mfg. Lathe.

## MILLING MACHINES

No. 5 Hendey, Lincoln type.  
Taylor & Fenn vertical.  
No. 18 Cincinnati plain.  
No. 18 Rockford plain.  
No. 3-B Milwaukee plain.  
No. 5-B Brown & Sharpe.

No. 3 Becker vertical.  
No. 18 Brown & Sharpe.  
12" P. & W. automatic.  
Type "A" Briggs.  
No. 32 Kempsmith.

## SCREW MACHINES

No. 0 Foster, plain head, automatic chuck and wire feed.  
No. 2 Foster, plain head, automatic chuck and wire feed.  
No. 1 Pratt & Whitney, automatic chuck and wire feed.

## TURRET LATHES

21" Gisholt.  
24" Gisholt.  
27"x24" Jones & Lamson.  
Potter & Johnston.  
28" Cleveland, automatic.  
14" Warner & Swasey.

## PRESSES

No. 6 Eames Arbor Press.  
No. 2-A Bliss Double Crank Geared Press.

# Stocker-Rumely-Wachs Company

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Do you need Cylindrical Grinders? Here is your opportunity to get good modern machines at an unusually low price.

Ten—6"x32"  
Six—10"x24"  
Four—10"x28"  
Two—10"x36"  
Two—10"x72"  
Eight—14"x36"  
Eighteen—14"x50"  
Five—14"x72"  
Four—16"x32" Landis  
One—16"x36" Queen City

## Cam Grinders

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New, Used and GUARANTEED Rebuilt  
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### SCREW MACHINES

- No. 4 W. & S., p. f. to turret.
- No. 9 Brown & Sharpe automatic.
- No. 2 B. & S. automatic, 4" cap.
- No. 1 Chicago automatics, 4" cap.
- No. 1 Bardons & Oliver, 1" cap.
- No. 3 Stecher, 1 5-16" cap.
- No. 18 P. & W., 4" cap.
- 18" Cleveland auto., model B.
- 18" Cleveland auto., model B.
- 18" Cleveland auto., model A.
- No. 52 National Acme 4 spindle.
- No. 515 National Acme 4 spindle.

### GRINDERS

- 6"x20" Fitchburg plain auto.
- 12x30" Fitchburg plain auto.
- 12x36" Fitchburg plain auto.
- No. 14 Gardner disc, univ. tables.
- No. 14 Bealy disc, univ. tables.
- No. 1 W. & W. Surface.
- No. 1 W. & W. tool and cutter.
- 1 Hartford surface.

### MILLERS

- No. 6 Steptoe b. g. plain.
- 20x7x17 Oesterlein b. g. plain.
- No. 25 Hilton b. g. plain.
- No. 32 Fox hand, p. f., b. g.
- No. 14 American b. g., p. f., plain.
- 3" & 6" Lees Bradner thread.
- 2" Foster thread.
- No. 12 P. & W., Lincoln type.

### DRILLING MACHINES

- 21" Superior, tapp. attach.
- 24" Milwaukee, s. h., p. f.
- 24" Culbourn D-4, h. d.
- 30" Bickford, b. g., p. f.
- 42" Wright, s. h., b. g.
- 54" Davis, b. g., p. f.
- 2 spindle Edlund, b. b., h. s.
- 6 spindle Allen, b. b., h. s.
- 12 spindle P. & W. mult., 1" cap.
- 16 spindle P. & W. mult., 1" cap.

### SHAPERS

- 14", 16" & 20" Steptoe.
- 20" Walcott.
- 24" Lodge & Davis.
- 24" Queen City.

### PUNCH PRESSES

- No. 3 Norton incl.
- No. 3 R. & K., incl.
- No. 17 Bliss, o. b. i.
- No. 18 Bliss, o. b. i.
- No. 4 McDonald incl.
- No. 54 Walsh o. b. i. 4" str. grd.
- No. 65-N Bliss, double acting.
- No. 68-C 2 Bliss, double acting.
- No. 68-W Bliss, double acting.
- No. 20 Bliss.
- Nos. 58-59-59½ Toledo, s. s.

### LATHES

- No. 2 Niles axle, 8' cent.
- No. 3 Niles axle.
- 3½x60, 6x60, 8x60 & 8x108 Lo-Swing.
- 14x6 Filsmith, q. c. g.
- 14x6 Reed-Prentice, h.d. oil pan bed.
- 16x7 Oliver tool room, q. c. g.
- 16x8 Gisholt turret.
- 17x6 LeBlond, q. c. g.
- 18x8 Oliver, t. r., q. c. g.
- 20x8 Hamilton, s. q. c. g.
- 24x12 Cisco, q. c. g.
- 24x12 Gisholt turret.
- 24"20 American, q. c. g.
- 23x24 Putnam standard.
- 28x10 Pond, q. c. g.
- 30x12 Putnam, geared head.
- 30x13½" Oliver, geared head.
- 32x28 Bridgeford, geared head.
- 28x16 Standard, raised to 60°.
- 36x22 Bridgeford, geared head.
- 52" Niles car wheel.
- 50x20 Fifield, triple geared.
- 96x24 Fifield, triple geared.

### MISCELLANEOUS

- 30" Rogers Boring Mill.
- 20th Century Die Filing Machine.
- No. 404 Oliver Die Filing Machine.
- 6x6 Curtis Compressor.
- 50 h. p. Atlas Steam Engine.
- 100 h.p. Watertown Auto. Steam Eng.
- 50 h. p. Chalmers Lighting Gener.
- Largest stock of machine tools.
- This is only a partial list.

SEND US YOUR INQUIRIES. WE HAVE WHAT YOU NEED.

# OUR GUARANTY MONEY BACK IF NOT SATISFIED

## Drills—Radial

1—No. 4 Foote-Burt 6-sp. rail drill,  
No. 5 Morse taper, 99% new.  
1—5' Universal Radial.  
1—4' Universal Radial.

1—20" Thompson Full Univ.  
1—No. 2 Manhattan Surface.  
1—Grand Rapids Drill, 24" cap.  
3—No. 2 Oakley Univ. C. & T.

1—4' Lodge & Davis Plain.  
6—20" Weigel w. & l. feed Drills.  
4—Hoefer Drills, 21", 24", 26", 28".

## Grinders

1—No. JA Yankee Drill Grinder.  
1—Used No. 2 Woods Cutter.  
1—Gisholt Tool Grinder.

## Shapers

1—20" Ohio B. G. Crank (new).  
1—Each 16, 18, 21, 24" Hollingsworth  
B. G. Crank (new).

## Millers

10—No. 32 Kempsmith Lincoln Type.  
2—No. 1½ American Plain.  
1—No. 1½ American Universal.

## Presses and Punches

1—No. 2 Pratt & Whitney Forming  
and Trimming Press.  
6—Willard Presses, 2, 3, 4, 5-A Inc.

1—Duty Combined Punch & Shear,  
grd.; cap about 4x1", with 7" tht.

## Gisholt Turret Lathes

19—24", with 2½", 4½" and 6½" h. s., chucking equip., qck. ret., rapid traverse.

## Hand Screw Machines

14—No. 2 Smith, rd. collet, 1-1/16"; wire fd., auto. chuck, ind. stops to turret.  
1—Foster Screw Machine, 1 3/16" capacity.

## Baush Multiple Spindle Drills

1—Baush Multiple, arranged for 24 spindles; now with 12 spindles; takes 60" bet. columns; drills in any circle 12-48" dia.; approximate weight 30,000 lbs.  
1—No. 1 Baush High Speed Multiple Spindle, rectangular head 16x20": ar-  
ranged for 16 spindles; now with 10½" spindles; No. 2 M. T.; cone drive.  
1—Baush Multiple, arranged and equipped with 16 spindles, No. 1 M. T.

## Lathes

4—Ideal Precision Lathes, 7" swing, comp. slide, grinding attachment.  
3—Ames Precision Lathes, 8" swing, compound slide.  
2—12 & 14"x 6' Worcester Tool Room, taper attachment, pan and collet.  
1—Used Blaisdell 22"x10' b. g. Engine Lathe.  
1—Each Sidney Heavy Duty Lathes, 15, 17, 19, 25 and 27" by 6, 8, 10, 12 and  
14' beds, d. b. g., 3-step cone, q. c. g.  
1—Each Sidney Medium Pattern Lathes, 14, 16, 18 and 20" by 6, 8 and 10' beds,  
d. b. g., 3-step cone, q. c. g.  
1—20"x10' Bradford, with turret attachment on carriage, compound rest,  
h. s. and ind. change gears.  
1—25"x8' Economy Heavy Duty Single Purpose Lathe, d. b. g., 3-step cone,  
c. r., hollow spindle, quick change feed.  
1—12"x 6' Reed.  
2—14"x6' Monarch, h. s., c. r.

1—16"x8' Monarch h. s., c. r.  
1—17"x 8' Putnam.

## Planers

1—24"x24"x 5' Gray, 1 head.  
1—26"x24"x 8' Pond, 2 heads.

1—32"x32"x10' Fitchburg.  
1—40"x40"x10' New Haven, 1 head.

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**Vonnegut Machinery Co.**

Indianapolis, Indiana

1—36"x22' Lodge & Shipley Engine  
Lathe, Geared Head, S. P. D., 14'  
6" between centers.

1—36"x18' LeBlond High Duty Engine  
Lathe, adaptable direct motor  
drive only.

1—42x42x22' Flather Planer, 3 heads.

1—48x48x22' Cincinnati Planer, four  
heads (practically new).

1—30 ton Case Crane, 5 ton auxiliary  
lift, 75' span, four motors (practi-  
cally new).

1—10' Bertsch Squaring Shear.

1—No. 55 Toledo Punch Press.

2—No. 74 Toledo Punch Presses.

## Classified Finding Index

**Air Guns**  
Powell Co., Wm., Cincinnati

**Angle Plates**  
Fairbanks Company, The, New York  
Reid Brothers, Co., Inc., Beverly, Mass.

**Arbors, Roller Grip**  
Alert Tool Co., Philadelphia

**Arbors, Solid**  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
E. O. Partridge 2047 W. Lake St., Chicago

**Automatics**  
National Acme Company, Cleveland  
New Britain Machine Co., New Britain, Conn.

**Balancing Ways**  
Anderson Bros. Mfg. Co., Rockford, Ill.

**Ball Bearings**  
Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

**Balls, Brass, Bronze and Steel**  
Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

**Band Saw Machines, for Metal**  
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

**Barrels, Tumbling**  
Abbott Ball Co., Hartford, Conn.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

**Belt Shifter**  
Kremer-Cummins Machine Co., Cleveland

**Bench Legs, Steel**  
New Britain Mch. Co., New Britain, Conn.

**Bending Machines, Hand and Power**  
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., P. H. 417 E. 31st St., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Boring Bars**  
Alert Tool Co., Philadelphia  
Madison Mfg. Co., Muskegon, Mich.  
Pedrick Tool & Machine Co., Philadelphia  
Ready Tool Co., Bridgeport, Conn.  
Underwood Corp., H. B., Philadelphia

**Boring Bars, Cylinder**  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Boring, Drilling and Milling Machines, Horizontal**  
Barnes Co., W. F. & John, Rockford, Ill.  
Bennett & Smith Co., Providence, R. I.  
Carroll Dry & Mch. Tool Co., Bucyrus, Ohio  
Fawling & Harnischfeger Co., Milwaukee  
Simmons Mch. Co., Albany, N. Y.

**Boring Machines, Horizontal**  
Avey Drilling Machine Co., Cincinnati  
Pedrick Tool & Machine Co., Philadelphia

**Boring and Turning Machines, Vertical**  
Simmons Mch. Co., Albany, N. Y.  
Turner Machine Co., Danbury, Conn.

**Bowden Wire Mechanism**

Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

**Broaches**  
Velco Mfg. Co., Inc., Greenfield, Mass.

**Broaching Machines**  
Simmons Machine Co., Albany, N. Y.

**Bushings, Brass and Bronze**  
Bunting Brass & Bronze Co., Toledo, Ohio

**Case Hardening Compound**  
Buchanan Chemical Co., C. G., Cincinnati

**Casters for Trucks**  
Hamilton Caster & Mfg. Co., Hamilton, Ohio

**Centers, Index**  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Carter & Hakes Mch. Co., W. Winsted, Conn.

**Chains, Power Transmission**  
Cullinan Wheel Co., 1344 Altegold St., Chicago  
Whitney Mfg. Co., Hartford, Conn.

**Chasers**  
Modern Tool Co., Erie, Pa.  
National Acme Co., Cleveland

**Chucking Machines**  
New Britain Mch. Co., New Britain, Conn.

**Chucks, Air**  
Frontier Chuck & Tool Co., Buffalo, N. Y.

**Chucks, Centering**  
McCrosky Tool Corporation, Meadville, Pa.  
Thomas Elevator Co., 31 S. Hoyne Av., Chicago

**Chucks, Draw-in and Thrust**  
Hardinge Bros., 1770 Bertens Av., Chicago

**Chucks, Drill**  
Collis Company, The, Clinton, Iowa  
Hartford Special Mch. Co., Hartford, Conn.  
McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago  
Weaver Mfg. Co., Springfield, Ill.

**Chucks, Drill and Tap**  
Collis Company, The, Clinton, Iowa  
McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Peter Bros. Mfg. Co., Algonquin, Ill.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

**Chucks, Keyway Cutting**  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

**Chucks, Lathe**  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

## Classified Finding Index

**Chucks, Magnetic**  
Hald Machine Co., Worcester, Mass.

**Chucks, Wrenchless**  
Thomas Elevator Co., 31 S. Horne Ave., Chicago

**Clutches, Friction**  
Edgemont Machine Co., Dayton, Ohio  
Milwaukee Shaper Co., Milwaukee, Wis.

**Cold Saws**  
Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Fairbanks Company, The, New York  
Howilton Machine Co., Westbrook, Me.  
Peter Bros. Mfg. Co., Algonquin, Ill.

**Collets, Lathe and Screw Machines**  
Hardinge Bros., 1770 Beretau Ave., Chicago  
Morrison Machine Products, Inc.,  
Rochester, N. Y.

**Couplings, Flexible**  
Cooper Flexible Transmission Co., Inc., Brooklyn

**Cranes, Hand Power**  
Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.  
Weaver Mfg. Co., Springfield, Ill.

**Cranes, Portable**  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Canton Foundry & Mfg. Co., Canton, Ohio  
Weaver Mfg. Co., Springfield, Ill.

**Cranes, Traveling**  
Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.

**Crank Pin Turning Machine**  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Cutters, Adjustable**  
Fairbanks Company, The, New York  
McCrosky Tool Corporation, Mederville, Pa.  
Madison Mfg. Co., Muskegon, Mich.

**Cutters, Bolt**  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

**Cutters, Keyseating**  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Whitney Mfg. Co., Hartford, Conn.

**Cutters, Milling**  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Clough, R. M., Meriden, Conn.  
Moback Tool & Machine Co., Boston  
Whitney Mfg. Co., Hartford, Conn.

**Cutting-Off Machines**  
Davis Machine Tool Co., Rochester, N. Y.  
Etna Mfg. Co., Toledo, Ohio  
Peter Bros. Mfg. Co., Algonquin, Ill.

**Cylinder Boring Machines, Portable**  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

**Cylinder or Dome Facing Machines**  
Underwood Corp., H. B., Philadelphia

**Die Heads, Self-Opening**  
Modern Tool Co., Erie, Pa.  
Murchey Machine & Tool Co., Detroit, Mich.  
National Acme Company, Cleveland

**Dicing Machines**  
Henry & Wright Mfg. Co., Hartford, Conn.

**Dies, Pipe Threading**  
Bignalik-Koester Mfg. Wks., Edwardsville, Ill.

**Dies, Screw and Thread Cutting**  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Hardinge Brothers, 1770 Beretau Av., Chicago  
National Acme Company, Cleveland

**Dies, Self-Opening Adjustable**  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Modern Tool Co., Erie, Pa.  
Murchey Mch. & Tool Co., Detroit, Mich.  
Rickett-Shafer Co., Erie, Pa.  
Victor Tool Co., Inc., Waynesboro, Pa.

**Dogs, Machine**  
Ready Tool Co., Bridgeport, Conn.

**Drilling Heads for Square Holes**  
Fairbanks Company, The, New York

**Drilling Machine Heads**  
Nelson-Blane Mfg. Co., Detroit, Mich.  
Sewell Machine Tool Co., Pawtucket, R. I.  
United States Drill Head Co., Cincinnati  
United States Machine Tool Co., Cincinnati

**Drilling Machines, Bench**  
Avey Drilling Machine Co., Cincinnati  
Baron Co., W. F. & John, Rockford, Ill.  
Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
High Speed Hammer Co., Rochester, N. Y.  
Reed Co., Francis, Worcester, Mass.  
Taylor & Fenn Co., Hartford, Conn.

**Drilling Machines, Horizontal**  
Pawling & Harnischfeger Co., Milwaukee, Wis.

**Drilling Machines, Multiple Spindle**  
Avey Drilling Machine Co., Cincinnati  
Detroit Machine Tool Co., Detroit, Mich.  
Henry & Wright Mfg. Co., Hartford, Conn.  
National Acme Company, Cleveland  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.

**Drilling Machines, Post**  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Henry & Wright Mfg. Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati

**Drilling Machines, Radial**  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Pawling & Harnischfeger Co., Milwaukee, Wis.  
Taylor & Fenn Co., Hartford, Conn.  
Sipp Machine Co., Paterson, N. J.

**Drilling Machines, Sensitive**  
Avey Drilling Machine Co., Cincinnati  
Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Hardinge Brothers, 1770 Beretau Av., Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.  
United States Machine Tool Co., Cincinnati  
Wisconsin Electric Co., Racine, Wis.

## Classified Finding Index

**Drilling, Milling and Boring Machines, Vertical**  
 Aurora Tool Works, Aurora, Ind.  
 Knight Machinery Co., W. B., St. Louis, Mo.

**Drilling Machines, Vertical**  
 Aurora Tool Works, Aurora, Ind.  
 Avery Drilling Machine Co., Cincinnati  
 Barnes Co., W. F. & John, Rockford, Ill.  
 Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
 Davis Machine Tool Co., Rochester, N. Y.  
 The Fairbanks Company, New York  
 Frontier Mch. Tool Co., Inc., Buffalo, N. Y.  
 Henry & Wright Mfg. Co., Hartford, Conn.  
 Hinckley Machine Works, Hinckley, Ill.  
 Minster Machine Co., Minster, Ohio  
 Sipe Machine Co., Paterson, N. J.  
 Taylor & Fenn Co., Hartford, Conn.

**Drilling and Tapping Attachments**  
 Aurora Tool Works, Aurora, Ind.  
 Henry & Wright Mfg. Co., Hartford, Conn.  
 McGroarty Tool Corporation, Meadville, Pa.  
 Modern Tool Co., Erie, Pa.  
 Meed Co., Francis, Worcester, Mass.  
 Sipe Machine Co., Paterson, N. J.  
 Turner Machine Co., Danbury, Conn.

**Drills, Portable Pneumatic**  
 Keller Pneumatic Tool Co., Grand Haven, Mich.

**Drills, Portable Electric**  
 Wisconsin Electric Co., Racine, Wis.

**Dust Handling Equipment**  
 Knickerbocker Co., Jackson, Mich.

**Emery Stands**  
 Mount Co., J. G., Everett, Mass.  
 Partridge, E. O., 2047 W. Lake St., Chicago

**Emery Wheel Dressers and Cutters**  
 Precision Truing Mch. & Tool Co., Cinci.  
 Taylor & Fenn Co., Hartford, Conn.

**Facing Heads, Automatic**  
 Mumford-Dixon Co., Hanover, Pa.

**Feeders, Oil and Soda Water**  
 New Britain Machine Co., New Britain, Conn.

**Filing Machines**  
 Cochrane-Bly Co., Rochester, N. Y.  
 Johnson & Biddle Tool Co., Elkhart, Ind.

**Filing and Sawing Machines**  
 Johnson & Biddle Tool Co., Elkhart, Ind.

**Flexible Shafts**  
 Strand & Co., N. A., 549 Washington Blvd., Chicago

**Forges**  
 Canedy-Otto Mfg. Co., Chicago Heights, Ill.

**Forgings, Drop**  
 Western Tool & Mfg. Co., Springfield, Ohio

**Forgings, Hollow Bored**  
 American Hollow Boring Co., Erie, Pa.

**Furnaces**  
 Bennett Co., W. R., Elmwood, Conn.  
 Strong, Cartisie & Hammond Co., Cleveland

**Furniture, Machine Shop**  
 New Britain Machine Co., New Britain, Conn.  
 Western Tool & Mfg. Co., Springfield, Ohio

**Gauges, Amplifying, Snap and Plug**  
 Ainge Tool, Die and Machine Works, Geo. H., Springfield, Ohio

**Gauges, Taper**  
 Hartford Special Mch. Co., Hartford, Conn.  
 Way Co., A. F., Hartford, Conn.

**Gear Cutting Machines**  
 Brown & Sharpe Mfg. Co., Providence, R. I.

**Gears**  
 Merkle-Korff Gear Co., 813 S. Clinton St., Chicago  
 Stranahan Gear Co., Inc., Philadelphia

**Grinding Machines, Bench**  
 Blount Co., J. G., Everett, Mass.  
 Partridge, E. O., 2047 W. Lake St., Chicago

**Grinding Machines, Cutler, Reamer and Tool**  
 Barnes Co., W. F. & John, Rockford, Ill.  
 Blount Co., J. G., Everett, Mass.  
 Clough, R. M., Meriden, Conn.

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.  
 Greenfield Machine Co., Greenfield, Mass.  
 Greenfield Tap & Die Corp., Greenfield, Mass.  
 Manhattan Machine & Tool Works., Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.  
 Mumford-Dixon Co., Hanover, Pa.  
 National Acme Co., Cleveland  
 Simmons Machine Co., Albany, N. Y.  
 Thompson Grinder Co., Springfield, Ohio  
 Wilmarth & Norman Co., Grand Rapids, Mich.

**Grinding Machines, Cylinder**  
 Head Machine Co., Worcester, Mass.  
 Whitney & Son, Baxter D., Winchendon, Mass.

**Grinding Machines, Cylindrical**  
 Brown & Sharpe Mfg. Co., Providence, R. I.  
 Detroit Machine Tool Co., Detroit, Mich.  
 Greenfield Machine Co., Greenfield, Mass.  
 Manhattan Machine & Tool Works., Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.  
 Ott Grinder Co., Indianapolis, Ind.  
 Schmidt Co., B. L., Davenport, Iowa  
 Simmons Machine Co., Albany, N. Y.  
 Thompson Grinder Co., Springfield, Ohio

**Grinding Machines, Disc**  
 Manhattan Machine & Tool Works., Grand Rapids, Mich.  
 Modern Tool Co., Erie, Pa.  
 Reed Bros. Co., Inc., Beverly, Mass.  
 Thompson Grinder Co., Springfield, Ohio  
 Wilmarth & Norman Co., Grand Rapids, Mich.

**Grinding Machines, Disc**  
 Selle Machine Tool Co., Pawtucket, R. I.

**Grinding Machines, Drill**  
 Grand Rapids Grinding Machine Co., Grand Rapids, Mich.  
 Wilmarth & Norman Co., Grand Rapids, Mich.

**Grinding Machines, Face**  
 Taylor & Fenn Co., Hartford, Conn.  
 Thompson Grinder Co., Springfield, Ohio

**Grinding Machines, Internal**  
 Head Machine Co., Worcester, Mass.  
 Modern Tool Co., Erie, Pa.  
 Ott Grinder Co., Indianapolis, Ind.  
 Taylor & Fenn Co., Hartford, Conn.  
 Thompson Grinder Co., Springfield, Ohio  
 Whitney & Son, Baxter D., Winchendon, Mass.  
 Wilmarth & Norman Co., Grand Rapids, Mich.

**Grinding Machines, Oilstone**  
 Mumford-Dixon Co., Hanover, Pa.

**Grinding Machines, Portable**  
 Mumford-Dixon Co., Hanover, Pa.  
 Strand & Co., N. A., 549 Washington Blvd., Chicago  
 Wisconsin Electric Co., Racine, Wis.

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### Grinding Machines, Snagging

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.  
Manhattan Machine & Tool Works, Grand Rapids, Mich.

### Grinding Machines, Surface

Heald Machine Co., Worcester, Mass.  
Reid Brothers Co., Inc., Beverly, Mass.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Norman Co., Grand Rapids, Mich.

### Grinding Machines, Tap

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

### Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.  
Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

Greenfield Machine Co., Greenfield, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Modern Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Norman Co., Grand Rapids, Mich.

### Grinding Wheel Dressers

Miller & Sons, Otto A., Detroit, Mich.

### Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago  
Western Tool & Mfg. Co., Springfield, Ohio

### Hammers, Belt & Motor Driven

Beadry & Co., Boston

United Hammer Co., Boston

### Hammers, Power

Nazel Engineering & Mch. Wks., Philadelphia

### Hammers, Riveting

High Speed Hammer Co., Rochester, N. Y.  
Quickwork Co., St. Marys, Ohio

### Heads, Dividing

Simmons Machine Co., Albany, N. Y.  
Willard-Middletown Machine Co., Cincinnati

### Heads, Index

Dickow, Fred C., 2504 W. Lake St., Chicago

### Hoists, Air

Northern Engineering Works, Detroit, Mich.

### Hoists, Electric

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago  
Weaver Mfg. Co., Springfield, Ill.

### Hoists, Electric Traveling

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.

### Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

### Holders and Counterbores

Manufacturers Machine Products Co., Detroit, Mich.

### Jigs, Fixtures, Tools, Etc.

Aling Tool, Die and Machine Works, Geo. H., Springfield, Ohio  
Hartford Special Mch. Co., Hartford, Conn.  
Hinckley Machine Works, Hinckley, Ill.  
Potter Tool & Machine Works, S. A., 79 E. 130th St., New York  
Way Co., A. F., Hartford, Conn.

### Joints, Universal

Almico Mch. & Tool Works, Hartford, Conn.  
Burgesson Manufacturing Co., Inc., Torrington, Conn.  
Cooper Flexible Transmission Co., Inc., Brooklyn

### Keystoning Machines

Bucher-Smith Co., East Liverpool, Ohio  
Chattanooga Mch. Co., Chattanooga, Tenn.  
Davis Machine Tool Co., Rochester, N. Y.  
National Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

### Lathe Accessories and Attachments

Hardinge Bros., 1770 Bertrand Ave., Chicago  
McGraws Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Sidney Tool Co., Sidney, Ohio  
Simmons Machine Co., Albany, N. Y.

### Lathe, Automatic

National Acme Company, Cleveland

### Lathe, Beach

Blount Co., J. G., Everett, Mass.  
Hardinge Brothers, 1770 Bertrand Av., Chicago  
Potter Tool & Machine Works, S. A., 79 E. 130th St., New York

### Lathe, Engine

Barnes Co., W. F. & John, Rockford, Ill.  
Candy-Otto Mfg. Co., Chicago Heights, Ill.  
Davis Machine Tool Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
Lehmann Machine Co., St. Louis, Mo.  
Monarch Machine Tool Co., Sidney, Ohio  
Mueller Machine Tool Co., Cincinnati  
Sidney Tool Co., Sidney, Ohio  
Standard Lathe Works, Cincinnati  
Willard Machine Tool Co., Cincinnati

### Lathe, Foot Power

Barne Co., W. F. & John, Rockford, Ill.

### Lathe, Horizontal Turret

Davis Machine Tool Co., Rochester, N. Y.  
Steinle Turret Machine Co., Madison, Wis.

### Lathe, Short Cut

Sidney Tool Co., Sidney, Ohio

### Lathe, Speed and Hand

Blount Co., J. G., Everett, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.

### Lockers, Shelving and Cupboards, Steel

Terrell's Equipment Co., Grand Rapids, Mich.

### Mandrels, Expanding

Alert Tool Co., Philadelphia  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Western Tool & Mfg. Co., Springfield, Ohio

### Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

### Measuring Devices

Van Keuren Co., The, Boston

### Metal Cutting Machines, Sheet

Quickwork Co., St. Marys, Ohio  
Savage Co., W. J., Knoxville, Tenn.

Way Co., A. F., Hartford, Conn.

### Microgages

Van Keuren Co., The, Boston

### Milling Attachments

Ainge Tool, Die and Machine Works, Geo. H., Springfield, Ohio  
Brown & Sharpe Mfg. Co., Providence, R. I.

Burke Machine Tool Co., Connecticut, Ohio

Hinckley Machine Works, Hinckley, Ill.

Knight Machinery Co., W. B., St. Louis, Mo.

Potter Tool & Machine Works, S. A., 79 E. 130th St., New York

Willard-Middletown Machine Co., Cincinnati

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### Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio  
Carter & Hakes Mfg. Co., W. Winsted, Conn.  
Hardinge Brothers, 1770 Bertrand Ave., Chicago  
Simmons Machine Co., Albany, N. Y.

### Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio  
Carter & Hakes Mfg. Co., W. Winsted, Conn.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
United States Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

### Milling Machines, Horizontal

Beaman & Smith Co., Providence, R. I.

### Milling Machines, Plain

American Milling Machine Co., Cincinnati  
Beaman & Smith Co., Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago

### Milling Machines, Portable

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Milling Machines, Universal

American Milling Machine Co., Cincinnati  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Cochrane-Bly Co., Rochester, N. Y.

### Milling Machines, Vertical

Beaman & Smith Co., Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Clough, R. M., Meriden, Conn.  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Bertrand Ave., Chicago  
Knight Machinery Co., W. B., St. Louis, Mo.  
Taylor & Fann Co., Hartford, Conn.

### Motors, Electric

Reliance Electric & Eng. Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

### Not Facing Machines

Victor Tool Co., Inc., Waynesboro, Pa.

### Oil Cups

Gits Bros. Mfg. Co., 1940 S. Kilbourn Av., Chicago  
Tucker, W. C. & F. C., Hartford, Conn.

### Oil Extractors

Curtis, Albert B., Estate, Worcester, Mass.

### Oil Hole Covers

Tucker, W. C. & F. C., Hartford, Conn.

### Pattern Shop Machinery

Cochrane-Bly Co., Rochester, N. Y.  
Towsley Mfg. Co., John T., Cincinnati

### Pipe Bending Machines

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

Pipe Cutting and Threading Machines  
Bignal & Keeler Mfg. Wks., Edwardsville, Ill.  
Simmons Machine Co., Albany, N. Y.

Piston and Piston Ring Machines  
National Acme Company, Cleveland.

### Planer Attachment, Radius

Underwood Corp., H. B., Philadelphia

### Planer Attachment, Slotting

Moore Co., H. A., Rochester, N. Y.

### Planer Tools, Circular

Underwood Corp., H. B., Philadelphia

### Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Planing Machines, Metal

Fairbanks Co., The, New York

### Pneumatic Tools

Keller Pneumatic Tool Co., Grand Haven, Mich.

### Polishing and Buffing Machines

Rouant Co., J. G., Everett, Mass.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
New Britain Machine Co., New Britain, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Wilmeth & Norman Co., Grand Rapids, Mich.  
Wisconsin Electric Co., Racine, Wis. (Mich.)

### Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nashua, N. H.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Lourie Mfg. Co., Springfield, Ill.  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Weaver Mfg. Co., Springfield, Ill.

### Presses, Broaching

Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nashua, N. H.  
Lourie Mfg. Co., Springfield, Ill.

Presses, Foot

Atlas Press Co., Kalamazoo, Mich.  
Lowthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Rockford Iron Works, Rockford, Ill.  
Taylor & Fann Co., Hartford, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago

### Presses, Power

Hendley & Whittemore Co., Beloit, Wis.  
Lashbough-Jordan T. & M. Co., Elkhart, Ind.  
Rockford Iron Works, Rockford, Ill.  
Willard-Middletown Machine Co., Cincinnati

### Presses, Punch

Enterprise Machinery Co., 32 S. Clinton St., Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Lewthwaite Co., Geo. A., 118 Walker St., N. Y.  
Lewthwaite Mfg. Co., T. H., 417 E. 31st St., N. Y.  
Lashbough-Jordan T. & M. Co., Elkhart, Ind.  
Lourie Mfg. Co., Springfield, Ill.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Rockford Iron Works, Rockford, Ill.

### Presses, Screw

Atlas Press Co., Kalamazoo, Mich.  
Lourie Mfg. Co., Springfield, Ill.  
Manhattan Machine & Tool Works, Grand Rapids, Mich.  
Towsley Mfg. Co., John T., Cincinnati  
Weaver Mfg. Co., Springfield, Ill.

### Pulley Machinery

Avey Drilling Machine Co., Cincinnati

### Pulleys, Iron, Solid and Split

Enterprise Machinery Co., 32 S. Clinton St., Chicago

### Pump, Lubricating

Michigan Machine Co., Detroit, Mich.

### Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

### Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Hendley & Whittemore Co., Beloit, Wis.

Lewthwaite Mfg. Co., T. H., 417 E. 31st St., New York

Whitney Metal Tool Co., Rockford, Ill.

## Classified Finding Index

### Punches, Power

Clough, R. M., Meriden, Conn.  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

### Punches and Dies

Ainge Tool, Die and Machine Works, Geo. H., Springfield, Ohio  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch., Co., T. H., 417 E. 31st St., Rockford Iron Works, Rockford, Ill. [N. Y.]

### Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.

### Reamer Holder, Floating

Victor Tool Co., Inc., Waynesboro, Pa.

### Reamers, Adjustable

Clough, R. M., Meriden, Conn.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
McCrossy Tool Corporation, Meadville, Pa.

### Reamers, Cylinder

Hinckley Machine Works, Hinckley, Ill.  
McCrossy Tool Corporation, Meadville, Pa.

### Reamers, Solid

Clough, R. M., Meriden, Conn.  
McCrossy Tool Corporation, Meadville, Pa.  
Ready Tool Co., Bridgeport, Conn.

### Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati

### Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
High Speed Hammer Co., Rochester, N. Y.

### Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., T. H., 417 E. 31st, N. Y.  
Tucker, W. C. & F. C., Hartford, Conn.

### Roller Bearings

William Co., The, 23 Flatbush Ave., Brooklyn, New York

### Scraping Machines, Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

### Screw Driving Machines, Automatic

Reynolds Machine Co., Massillon, Ohio

### Screw Machines, Automatic

Brown & Sharpe Mfg. Co., Providence, R. I.  
National Acme Company, Cleveland  
New Britain Mch. Co., New Britain, Conn.

### Screw Machines, Auxiliary

National Acme Company, Cleveland

### Screw Machines, Plain or Hand

Potter Tool & Machine Works, S. A., 79 E. 130th St., New York

### Screws, Cap and Set

National Acme Company, Cleveland

### Second-Hand Machinery Dealers

Bath & Co., Cyril J., Cleveland  
Brown Machinery Co., St. Louis, Mo.  
Brownell Machinery Co., Providence, R. I.

### Second-Hand Mch. Dealers—Cont'd

Dale Machinery Co., Inc., 541 Washington Blvd., Chicago  
Enterprise Machinery Co., 32 S. Clinton St., Chicago

Empire Machinery Exchange, Cleveland  
Easley Machinery Co., E. L., 165 Washington Blvd., Chicago

Federal Mch. Sales Co., 12 N. Jefferson St., Chicago  
Graves Mch. Ex., 50 Church St., New York

Harris Bros. Co., W. 35th & Iron, Chicago  
Hill, Clarke & Co., 625 Wash U. St., Chicago

Johnson & Sons Machinery, Co., Wm. C., St. Louis, Mo.

Jones Machine Tool Co., Cincinnati  
Kemp Machinery Co., Baltimore, Md.

Little Co., W. P., Cleveland  
Lucas & Son, Inc., J. L., Bridgeport, Conn.

Lynn-Farguhar Co., Boston, Mass.  
McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York

McDonald Machinery Co., St. Louis  
McMullen Mch. Co., Grand Rapids, Mich.  
Marshall & Buschart Machinery Co., 17 S.

Jefferson St., Chicago  
Motech & Merryweather Mch. Co., Cleveland  
New York Machinery Exchange, 60 Church St., New York

Niles-Bement-Pond Co., 111 Broadway, N. Y.  
Norton-Broadway Mch. Co., Cincinnati

O'Brien Machinery Co., Philadelphia  
Osborne & Sexton Mch. Co., Columbus, O.  
Oviatt & Co., D. C., Cleveland

Peninsular Machinery Co., Detroit, Mich.  
Prentiss & Co., Henry, Singer Bldg., N. Y.

Reliance Machinery Sales Co., Pittsburgh  
Russell Machine Co., Pittsburgh, Pa.

Simmons Mch. Co., Albany, N. Y.  
Stocker-Rumely-Wach Co., 117 N. Jefferson St., Chicago

Strong, Carlile & Hammond Co., Cleveland  
Syracuse Supply Co., Syracuse, N. Y.

Toomey, Inc., Frank, Philadelphia  
Vonnegut Machinery Co., Indianapolis, Ind.

Walsh Machinery Co., M. J., Milwaukee, Wis.  
Wayne Mch. Co., Fort Wayne, Ind.

Winterer, Herman L., Philadelphia  
White Mch. Co., A. D., 105 N. Jefferson St., Chicago

Wright, David A., Jefferson & Monroe Sts., Chicago

Shafts, Flexible  
Stow Flexible Shaft Co., Philadelphia

### Shafts, Steel

American Hollow Boring Co., Erie, Pa.

### Shaper Attachment

Moore Co., H. A., Rochester, N. Y.

### Shaping Machines

Cochrane-Bly Co., Rochester, N. Y.

Colburn Machine Tool Co., Hamilton, Ohio

Davis Machine Tool Co., Rochester, N. Y.

Fairbanks Company, The, New York

Milwaukee Shaper Co., Milwaukee, Wis.

Osborne & Sexton Mch. Co., Columbus, O.

Sellew Machine Tool Co., Pottstown, H. I.

Simmons Mch. Co., Albany, N. Y.

Smith & Mills Co., Cincinnati

### Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Hendley & Whittemore Co., Beloit, Wis.

Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

T. H. Lewthwaite Machine Co., 417 E. 31st St., New York

Tucker, W. C. & F. C., Hartford, Conn.

Whitney Metal Tool Co., Rockford, Ill.

### Shears, Power

Hendley & Whittemore Co., Beloit, Wis.

Quickwork Co., St. Marys, Ohio

## Classified Finding Index

**Sine Bars**  
Way Co., A. F., Hartford, Conn.

**Slotting Attachment for Planer and Shaper**  
Moore Co., H. A., Rochester, N. Y.

**Slotting Machines**  
Clough, R. M., Meriden, Conn.

**Sprockets**  
Culman Wheel Co., 1844 Altgeld St., Chicago

**Steel, High Speed**  
Herbert, Ltd., Alfred, 54 Dey St., New York

**Steel, Tool**  
Herbert, Ltd., Alfred, 54 Dey St., New York

**Stock Supports**  
Way Co., A. F., Hartford, Conn.  
Will-Burt Company, Orrville, Ohio

**Straightening Machines**  
Towsey Mfg. Co., John T., Cincinnati  
Whitney Metal Tool Co., Rockford, Ill.

**Swaging Machines**  
Etna Mfg. Co., Toledo, Ohio

**Tables, Circular**  
Cochrane-Bly Co., Rochester, N. Y.  
Hinckley Machine Works, Hinckley, Ill.  
Leathwaite Co., Geo. A., 116 Walker St., N. Y.

**Tap Extractors**  
Walton Co., Hartford, Conn.

**Tap Wrenches**  
Alert Tool Co., Philadelphia

**Tapping Machines and Attachments**  
Avey Drilling Machine Co., Cincinnati  
Beaman & Smith Co., Providence, R. I.  
Bicknell-Thomas Co., Greenfield, Mass.  
Burke Machine Tool Co., Conneaut, Ohio  
Greenfield Tap & Die Corp., Greenfield, Mass.  
McCroskey Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Rickett-Shafer Co., Erie, Pa.  
Taylor-Shantz Co., Rochester, N. Y.  
Turner Machine Co., Danbury, Conn.  
Whitney Mfg. Co., Hartford, Conn.  
Whitney Metal Tool Co., Rockford, Ill.  
Workwell Eng. & Mfg. Co., 616 W. Monroe St., Chicago

**Taps, Collapsing**  
Modern Tool Co., Erie, Pa.  
Marchey Machine & Tool Co., Detroit, Mich.  
Victor Tool Co., Inc., Waynesboro, Pa.

**Taps and Dies**  
National Acme Company, Cleveland  
Victor Tool Co., Inc., Waynesboro, Pa.

**Threading Machines, Bolt and Stud**  
National Acme Company, Cleveland

**Threading Tools**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Modern Tool Co., Erie, Pa.  
Marchey Machine & Tool Co., Detroit, Mich.  
National Acme Company, Cleveland  
Ready Tool Co., Bridgeport, Conn.

**Tool Cases**  
Gerstner & Sons, H., Dayton, Ohio

**Tool Holders**  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Cleveland National Mfg. Co., Cleveland  
Ready Tool Co., Bridgeport, Conn.  
Western Tool & Mfg. Co., Springfield, Ohio

**Tools, Boring**  
Alert Tool Co., Philadelphia  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
B. & W. Tool & Die Co., Cleveland

**Tools, Lathe and Planer**  
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Ready Tool Co., Bridgeport, Conn.

**Tools, Machinists'**  
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Brown & Sharpe Mfg. Co., Providence, R. I.

**Trucks, Machine Shop**  
Fairbanks Company, The, New York  
New Britain Machine Co., New Britain, Conn.  
Towsey Mfg. Co., John T., Cincinnati

**Turntables**  
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**Valves**  
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**Valve Seat Planing Machines, Portable**  
Underwood Corp., H. B., Philadelphia

**Vises, Drilling Machine**  
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Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago  
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago  
Carter & Hakes Mfg. Co., W. Winsted, Conn.  
Thomas Elevator Co., 31 So. Hoyne Ave., Chicago

**Vises, Machinists'**  
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New Britain Machine Co., New Britain, Conn.  
Western Tool & Mfg. Co., Springfield, Ohio

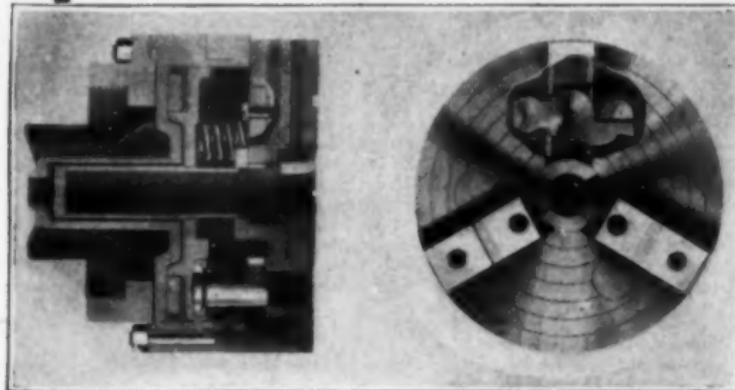
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## Pilot Bar Chuck

Made in 8"-10"-12"-15"-18" sizes of either Two or Three Jaw Manufacturing or Adjustable Types

The Frontier Pilot Bar Chuck is designed to meet the conditions where tools must be piloted. It is of the same simple construction as the other types of Frontier Chucks and is attached to the working end of the spindle. The Pilot Bushing is screwed into the face of the chuck which makes it absolutely rigid and concentric with the outside diameter at all times. The Pilot Tube will allow pilots of any desired length to be used. This chuck will bear your investigation. We also manufacture standard chucks without pilot bushings and drill press chucks.

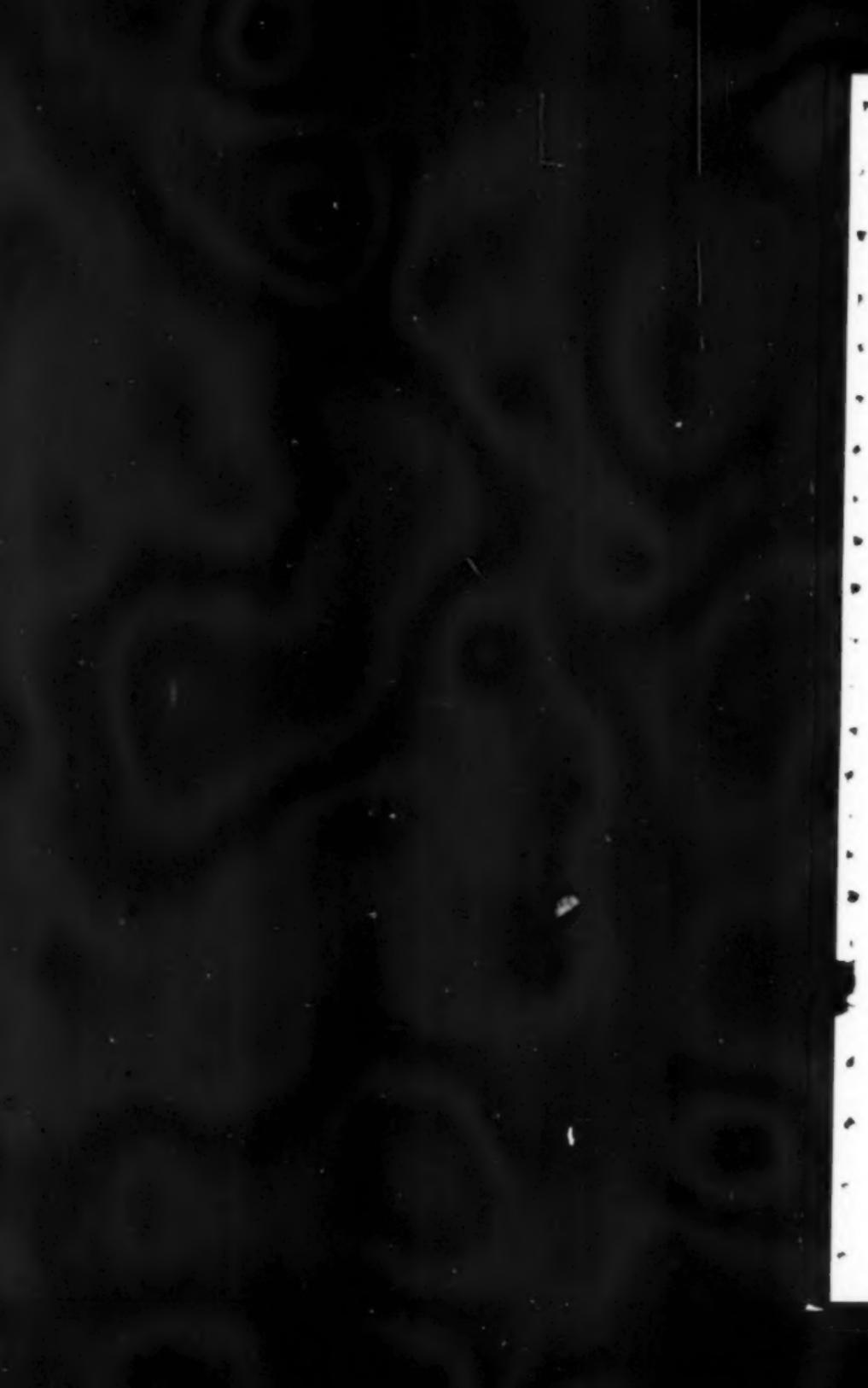
*For full particulars—write—*

**Frontier Chuck & Tool Co., Inc.**  
30 Letchworth Street, BUFFALO, N. Y.

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*May we tote along Bulletin No. 1224-B?*

**The New Britain Machine Company**

**"Shop Furniture  
Originators"**



**New Britain,  
Conn. U.S.A.**

